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H. M. the King on board a torpedo-boat.

OFFICE OF THE CHIEF OF STAFF OF THE ROYAL ITALIAN NAVY
(HISTORICAL SECTION)

THE ITALIAN NAVY
IN THE
WORLD WAR 1915-1918

FACTS & FIGURES

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CHAPTER I.

THE DEVELOPMENT OF THE ITALIAN NAVY DURING THE WAR

The Ships.

When the European war broke out in August, 1914, the Italian Navy had in course of completion a programme which was commensurate with the financial resources of the nation and framed within the limits of a policy that was devoid of any aggressive or imperialistic character. The realisation of this programme would have enabled the Italian fleet to maintain the proportions of 0.6 to 1 with that of France, and 4 to 3 with that of Austria.

The outbreak of the conflict, however, arousing new and dangerous eventualities, caused a change in this programme in the quantitative sense; while, on the other hand, the revolution which was taking place in the methods of naval warfare — a revolution which started practically at the beginning of hostilities and totally destroyed a whole body of naval traditions — necessarily had the effect of modifying in the qualitative sense the plans which would have enabled Italy to defend herself and take the offensive at sea.

The losses which the British Navy suffered in the earliest days of the war from the work of the German submarines; the increasingly effective assistance of aircraft as a means of scouting and for bombing fortified places and ships; the daily growing employment of mines whether as a protection for ports and whole tracts of sea,

or for laying insidious zones of danger—all these factors made it necessary to observe the greatest caution in the use of the battle squadrons for offensive operations.

The evolution of ancient principles regarding the employment of naval force made its effects felt in a special degree in those narrow seas with opposing coastlines, of which the Adriatic constitutes a peculiar example, and where the first to suffer a terrible experience of these new conditions were the French. The torpedoing of the *Jean Bart*, the loss of the destroyer *Dague*, and the sinking of the *Léon Gambetta*, were so many bitter proofs of the preponderance of the geographical factor in a maritime conflict.

When Italy entered the war on the side of the Allies, the conditions did not change. On the contrary — by a strange paradox — the fact of having a new enemy close at hand had the effect of multiplying the opportunities and defensive activities of the Austrian fleet, which was able to take the most complete advantage of its own important strategic position,

The west and east coasts of the Adriatic present essentially different characteristics. The former, the Italian, from the mouths of the Isonzo to Santa Maria di Leuca, does not possess — with the exception of Venice and Brindisi — any natural anchorage or shelters, while the artificial ports are few and of small importance. The towns, the industrial establishments, the railway lines are close to the sea and can be very easily attacked.

In the rock-bound and deeply serrated Dalmatian and Istrian shore, on the other hand, the Austrian Navy possessed a number of magnificent shelters. Innumerable islands constituted an admirable protective curtain for the maritime towns, while the channels made it possible to carry out any kind of naval movement in security and out of sight of the enemy. Every creek could become a base; and of creeks the Dalmatian coast possesses an infinity. The back-bone of this imposing system was constituted by the fortresses of Pola, Sebenico and Cattaro.

The naval problem by which Italy was confronted was a most difficult one to solve.

The choice of the offensive moment always rested with the Austro-Hungarian navy, which could at all times reach and bom-



Fixed batteries for coastal defence on the Adriatic.



The Austrian Adriatic coast.

bard the Italian littoral before the Italian forces at Venice or Brindisi were able to bring them to action, or at least to proceed to an effective pursuit. The solution of the problem could be sought either in speed or numbers. In the first case the Italian ships would have had to possess a speed three times greater than that of the Austrians; in the second case, the national navy would have had to remain continually at sea in superior force — a policy that would have demanded a fleet four times the size of the existing one. Hence both ideas were manifestly absurd and impracticable.

Composition of the two fleets at the opening of hostilities.

ITALY.			AUSTRIA.		
	n ^o	tons		n ^o	tons
<i>Battleships</i>	23	267,000	<i>Battleships</i>	20	193,500
<i>Light cruisers & Scouts</i>	9	24,000	<i>Light cruisers & Scouts</i>	7	23,900
<i>Torpedo boats</i>	93	22,500	<i>Torpedo boats</i>	87	18,000
<i>Submarines</i>	21	6,000	<i>Submarines</i>	7	2,200
TOTAL ..			TOTAL ..		
319,500			237,600		
<i>Aircraft</i> n ^o 20.			<i>Aircraft</i> n ^o 60.		

On the other hand, the losses due to submarine attacks, to which the Adriatic sector peculiarly lent itself, made it necessary to exercise the utmost prudence in the use of ships of heavy tonnage, a necessity demonstrated by the painful sinking of the *Amalfi* and the *Garibaldi*.

In this state of affairs, with the Austrian fleet shut up in its ports and the Italian engaged on a continuous and wearing cruise, the old standards of fighting strength were gradually disappearing and another factor taking their place, namely, the process of attrition, which the former ought to have been able to impose on the latter.

New means of warfare alone could change the existing conditions of disadvantage and reverse the terms of the situation, and these means were discovered in the employment of armoured trains and motor craft.

The former, which in the course of the war came to number 12, provided for the defence of the littoral between Cervia and Brindisi, and with their tempestuous intervention rendered offensive

action on the part of the enemy a precarious and highly dangerous proceeding. Each train was composed of from 16 to 18 trucks; according to their armament, whether it was four 152^{mm} (6 in.) guns, or four of 120^{mm} (4.7 in.) or eight of 76^{mm} (3 in.); and each was driven by two locomotives — one in front and the other at the rear.

The first motor launches which entered into service in May, 1916, had essentially the characteristics of “gun-boats” for escort work, territorial surveillance, reconnaissance duty, etc., they took the place of the small but unsuitable private motor-boats which had been requisitioned.

But towards the end of that year the idea occurred of using them for enterprises on a larger scale. Torpedoes were substituted for the guns; the internal combustion motors, which were constantly undergoing improvement until they were practically perfect, were given an important auxiliary in the form of electric motors, which, owing to their silence in operation, permitted surprise attacks to be made even inside the enemy's bases, and, thanks to a special contrivance of gear-wheels, the little vessels were able to pass over any kind of floating obstruction. Thus in the course of time their objective underwent a change, and the offensive, instead of being directed principally against the enemy's submarines, was extended even to his big line-of-battle ships. The success of the new arm is certainly measured by its rapid increase. In two years, thanks to the energy of the Chief of Staff of the Navy, Admiral Revel, the number of M.A.S. was increased to no fewer than 300.

At the same time, in order to meet the new demands created by the war, *scouts*, *destroyers*, *torpedo-boats* and *submarines* were put in hand at the State Shipyards and those of private companies, and, with the object of accelerating as much as possible the building of these lighter craft, the work of fitting out the battleships which had been laid down before the war was at first slowed down and then suspended altogether. On the other hand special attention was devoted to the production of material for countering the action of enemy submarines, whose activity with guns, torpedoes and mines was making the maritime traffic of Italy as well as that of the Allies ever more difficult and dangerous.



Flotilla of motor launches at sea.



The Italian Adriatic coast.

Escorting units for the convoys and means for clearing the landing places from mines were produced on a large scale, with a view to assisting the work of the scouts, destroyers and torpedo craft. In the early days steps had been taken to requisition and convert into men of war, vessels of quite small displacement. Subsequently, however, orders were placed with the State yards and private firms for the construction of a nucleus of units which were equipped with guns of small calibre and mine-sweeping apparatus, provision being made coincidentally for the acquisition abroad of all the motor fishing craft that were available.

To maintain the efficiency of the growing Italian Navy and of the allied ships co-operating therewith, it became necessary to mobilise the whole of the national resources. A few figures will give an idea of the mass of work which devolved upon the State arsenals and the private shipyards. At these establishments there were repaired a total of 7,411 units, occupying no less than 166,488 working days. Repairs to allied vessels alone — 708 in all — occupied 15,933 days.

Armaments.

I. ARTILLERY. — In 1914, the artillery of the Navy was represented by a total of 3,036 guns. In the course of the war these were increased by 2,670, thus reaching a total of 5,706 guns.

This increase was imposed by urgent necessities, such as:

a) the institution of a chain of batteries — linked up by twelve armoured trains — for protection of the Adriatic coast and the consolidation of the fortified positions on that side;

b) realisation of a vast and complex programme of anti-submarine measures comprising the installation of a chain of batteries on the Tyrrhenian and Ionian shores, on the islands and along the colonial seaboard; the mounting of guns on steamers, and the arming of units intended for convoy escort and submarine hunting;

c) realisation of a programme, equally vast and complex, for anti-aircraft defence not only of fortresses, naval bases, aerodromes, industrial centres and coastal towns, but also of every single unit of the fleet;

- d) assistance to the operations of the army, either in the form of ceding guns or despatching naval guns to the front ;
- e) armament of newly-built ships ;
- f) increase in the number and sometimes in the calibre and angle of elevation of guns on the smaller warships and torpedo craft, and the installation of guns on all the submarines.

Of the guns constructed during the war, some were reproductions of models already in use, but others, of a new type, had to be studied and designed in connection with the methods and tactics employed by the enemy. In this regard, mention should be made of the anti-aircraft guns and pieces of very long range, intended for bombardment at a great distance.

A type of anti-aircraft gun had already been designed immediately after the outbreak of the European war, and the construction of forty of these was put in hand. But that number was soon swollen to an enormous figure, as will be realised when it is stated that the production of the national factories was about 150 per month.

The idea of super-range guns was suggested by the bombardments of Paris carried out by the German army in the spring of 1918. After a thorough study of the problem, six 343^{mm} (13 1/2 in.) guns were handed over to the Ansaldo firm for conversion into weapons capable of hurling a 210^{mm} (8.2 in.) shell with an initial velocity of about 4,920 foot-seconds, giving a maximum range of about 110 kilometres (68 miles). But the conclusion of the armistice supervened before they could be brought into action.

II. MUNITIONS. — In connection with the supply of munitions, the Navy was confronted by difficulties arising from the scarcity of raw materials and of the labour necessary to turn out the requisite quantity, which, after the maximum effort had been directed towards filling up the void created by the consumption of the army at the front, was estimated at about 300 tons of explosive per month.

By measures of various kinds (cessions by the British Navy of cordite M. D. of old manufacture which was used by the naval guns on the land front, purchase in America of supplies of glyce-

rine and toluol with which to speed up the production of explosives ordered, etc.) the Navy succeeded in assuring a supply of munitions for all the weapons in service — a supply which, although below the standard fixed beforehand in time of peace, proved to be sufficient for actual needs.

III. UNDER-WATER WEAPONS. — *Mines.* — The outbreak of the war found the Italian Navy in a somewhat precarious situation as regards the supply of under-water weapons, particularly of mines. Measures had to be adopted not only for obtaining modern and efficient material, but for procuring it in such enormous quantities as to permit of the paying of defensive mine-fields opposite the fortresses and along certain parts of the coast, and of offensive mining in the areas principally frequented by the enemy — in short for closing the Otranto channel, for which purpose alone 1,800 mines were used.

Mines.

Existing before the war	..	..	..	..	N ^o	2,999
Made in Italy during the war	..	..	..	..	»	11,735
Supplied by the Allies	.	..	..	..	»	2,279
TOTAL						17,013
Laid during the war	..	..	..	..	»	12,293

In addition the Navy prepared :

1,000 floating mines ;

5,656 anti-submarine mines, of which 603 were used.

Torpedoes. — Before the war, the Italian Navy was entirely dependent on foreign sources for its torpedoes, and more particularly upon the Whitehead firm of Fiume. On the outbreak of the conflict, however, steps were taken to develop the factory at Spezia, and a new factory was established at Naples.

Torpedoes.

Existing at the beginning of the war	..	..	N ^o	1,924
Introduced during the war	..	..	»	624
Employed during the war	..	..	»	448

IV. SEARCHLIGHTS. — In the course of the conflict, the Navy doubled the number of its searchlights, and the total of naval and coastal types was brought to 1,310:

Searchlights.

(Naval Type).

Existing before the war	N ^o 105
Acquired during the war	» 113

(Coastal Type).

Existing before the war	N ^o 509
Acquired during the war	» 583

V. COMMUNICATIONS. — Special attention was given to the development of the communication services. Altogether some 7,000 kilometres (about 4,400 miles) of telegraph lines and 9,000 kilometres (about 5,600 miles) of telephone lines were laid, and about 1,400 stations were opened. The wireless stations were quadrupled, the total reached being 1,048 (naval and land). At the same time, no fewer than 624 *hydrophones* for the discovery of submarines were put into use.

VI. PROTECTION AGAINST SUBMARINES, MINES AND TORPEDOES.

For defence against mines there were employed:

236 mine-sweeping gears;
200 paravanes.

For protection against submarines and torpedoes there were used:

9,370,061 square metres of netting;
3,500 anchors;
345 kilometres of chains;
6,500 kilometres of steel cable;
4,000 tons of hempen rope;
3,000 tons of manilla rope;
2,200 heavy buoys;
6,000 floating cylinders;
400 light buoys.

The closing of the Otranto Channel is a work deserving special mention.



Armoured trains for coastal defence on the Adriatic.



Motor launch with torpedo

In 1918, in order to prevent the passage of enemy submarines a steel net was stretched between Corfu and Brindisi. It was over forty miles in length, 165 feet in height, and was held vertically at a depth of 30 feet below the surface of the water by means of anchored buoys.

Other details are:

number of nets used, 200;

number of buoys, 429;

steel cable, 112 miles;

number of mines, 1,200;

time occupied, working days, 141;

cost, Italian lire, 3,238,345, exclusive of cost of transport and labour.

The men.

In the summer of 1914, when the European war broke out, the Italian Navy was just recovering from the recent strain of the Libyan campaign, and suffered more particularly from the numerical insufficiency of the personnel. It set to work, however, to make this grave deficiency good as rapidly as possible. At the opening of hostilities the number of officers in all the divisions of the navy was a little more than 2,000. It was only in 1918, by having recourse to exceptional admissions and expedients of all kinds, that the total was brought up to 6,000 — barely sufficient for all the war services.

Similarly, the personnel of the C. R. E., which at the beginning of hostilities was only 40,000 men was gradually increased until, in 1918, it exceeded 130,000, the number which was indispensable whether for manning the ships or defending the coasts.

I. OFFICERS:

Number of officers of the Navy in the years indicated.

	1914	1916	1918
Executive officers N ^o	1,004	1,443	2,184
Engineers »	353	535	948
Naval-Constructors »	115	147	185
Doctors »	240	337	367
Pay-masters »	238	261	388
C. R. E. »	189	483	627

Percentages of employment.

On board	..	..	..	..	..	..	..	..	48	%
On coast defence	..	..	..	..	..	..	..	..	45	%
On the land front	..	..	..	..	..	..	..	..	2.5	%
Air service	..	..	..	..	..	..	..	..	4.5	%

II. CORPO REALI EQUIPAGGI: (1)

**Ratings of the C. R. E. employed in the naval war services
in the years indicated.**

1914	..	..	..	..	..	..	..	..	Nº	45,707
1916	..	..	..	..	..	..	..	..	»	76,630
1918	..	..	..	..	..	..	..	..	»	130,213

Percentages of employment.

On board..	..	..	..	..	..	..	..	..	44	%
On coast defence	..	..	..	..	..	..	..	..	39	%
On the land front..	..	..	..	..	..	..	..	..	12	%
Air service	..	..	..	..	..	..	..	..	5	%

The services of the Navy.

Fuel.

I. COAL. — At the beginning of august, 1914, the stocks of coal in the naval depots amounted to about 423,000 tons. In may, 1915, when Italy entered the war, the supplies had risen to 493,000 tons.

It is well known that Italy is entirely dependent on other countries for coal. Hence the very evident difficulties against which she had to contend in ensuring that there should be no shortage of the fuel which was indispensable for the continuation of the war. These difficulties were not lessened by the decrease in the available

(1) The *Corpo Reali Equipaggi* is a branch of the service which has no exactly corresponding name in the British navy. It comprises the whole of the petty-officers and seamen who live in naval barracks when not on board. It also has its own commissioned officers who are promoted from petty-officers, but cannot rise above the rank of lieutenant.



Italian aerial bombardment of Pola.

amount of tonnage due to the action of enemy submarines. During the first period of the conflict, the consumption of coal by the navy was about 60,000 tons per month. The cargoes from abroad went direct to the ports of the Tyrrhenian Sea, whence they were distributed by rail to the naval bases of the Adriatic and Ionian Seas.

At the end of 1915 the stocks of coal amounted to 870,000 tons, but in 1916 they declined to 740,000 tons.

The steady decline in stocks, in spite of the most energetic measures adopted for preventing it, became more accentuated after January, 1917. The principal causes of this serious inconvenience were the continual decrease in the tonnage engaged in the transport of coal, owing to the losses due to the submarine war, and the less profitable use made of such tonnage as was available owing to the necessity of sailing in convoy and to other provisions necessary to secure the most efficacious defence against submarine dangers.

Appeals to the Allies having failed to remedy this serious state of affairs, it became necessary to have recourse to every possible expedient. Among these were:

a) the employment in the land services and by ships on purely local duty of lignite and of various forms of national fuel, the production of which was greatly intensified;

b) the utmost restriction of consumption by exercising every possible economy, so long as the fighting efficiency of the fleet was not impaired and there was no interference with the regular course of the operations;

c) the reduction of the movements of ships to what was strictly indispensable.

The various measures which were thus adopted yielded results which were not to be despised, because they enabled the monthly consumption to be gradually brought down from 60,000 tons, as it stood at the beginning of the war, to 35,000 tons in 1918.

II. OIL FUEL. — At the beginning of the European conflict the Italian Navy had at its disposal a certain number of oil depôts on land capable of holding about 137,000 tons and floating depôts with a capacity of about 7,890 tons. During the period of

neutrality it became difficult to obtain supplies from Roumania, whence the greater part of the fuel oil used by our navy had been derived. Larger shipments were, therefore, secured from Texas, and by the end of May the stocks in the depôts amounted to 129.630 tons.

The distribution of the oil was effected in the following manner : The cargoes coming from America were sent preferably to Tyrrhenian and Sicilian ports, but sometimes were directed to Taranto, and, during the latter part of the war also to Brindisi. Venice was supplied by train from Spezia, one train, consisting of 20 tank-trucks, running every 24 hours. Train-loads were also sent to Venice from Brindisi and Taranto, and the supplies were completed by an occasional direct cargo.

Movement of coal during the war.

	Imports	Consumed by R. Navy and the Allies	Conceded to others
From August 1, 1924 to Dec. 31 1915..	1,500,000	1,006,000	—
Year 1916	614,000	703,000	—
» 1917	457,000	638,900	250,000
» 1918 until Nov. 3	514,000	629,000	72,000
TOTALS	3,085,000	2,976,900	322,000

Movement of oil fuel during the war.

	Imports	Consumed by R. Navy and the Allies
From Aug. 1, 1914 to Oct. 31, 1915	186,755	151,600
Year 1916	159,244	177,424
» 1917	148,405	189,400
» 1918	225,160	236,251
TOTALS	719,624	754,675

For supplying purposes, the Navy had at its disposal two tankers of 4,000 tons each. Later on two Austrian ships were sequestered and adapted for oil-carrying, a third ship of 3,000 tons was chartered, and the construction of two tankers of 6,000 tons each was put in hand. Thus it was possible to reckon upon a total of 37,600 tons of shipping for the transport of oil.

For obtaining supplies from America the six steamers available, one of which was torpedoed, were soon found to be insufficient, owing chiefly to the fact that a large number of new Italian ships with oil-burning furnaces had come into service and because of the presence in the Lower Adriatic of numerous Allied vessels also consuming liquid fuel. Hence it became necessary, in 1917, to meet the increased demand with cargoes despatched by the British Admiralty.

The situation became critical in consequence of the loss and laying-up of three more tankers, so that in June, 1918, the stocks fell to 70,000 tons distributed among various depôts. Nevertheless it was possible to face even this situation thanks to negotiations and agreements with the British Admiralty, which assumed the task of almost entirely supplying both Brindisi and Taranto, where the consumption was the heaviest, while at the same time strict limitations were imposed on consumption itself.

III. PETROL AND KEROSENE. — The supplying of petrol and kerosene presented no particular difficulties at the beginning of the war, because the services in which these varieties of liquid fuel were used had not then been very highly developed. Petrol was at first purchased from Italian firms, but subsequently it became more convenient to procure it direct from America. Later on the development of aviation and the entry into service of numerous motor launches caused a considerable increase in the consumption of petrol, making it necessary to double the supply and provide for its proper storage.

Supplies of petrol during the war.

	Imports tons	Consumed by Italian Navy and the Allies tons
From Aug. 1, 1914 to Dec. 31, 1915	2,300	900
Year 1916	3,121	3,137
" 1917	7,755	5,478
" 1918 until Nov. 3	14,652	12,465
TOTALS	27,828	21,980

Supplies of kerosene during the war.

	Imports tons	Consumed by Italian Navy and the Allies tons
From Aug. 1, 1914 to Dec. 31, 1915	—	—
Year 1916	1,908	1,035
" 1917	2,383	1,218
" 1918 until Nov 3.	138	1,279
TOTALS	4,429	3,532

VICTUALLING. — The stocks in the various magazines at the beginning of the european war consisted of 1,450,000 rations. These supplies, brought up in 1915 to 3,795,000 fell to 3,405,000 at the end of 1916. The maximum efficiency was attained in the last few months of 1918 (5,678,000 rations). The period of this intensification coincided with the aggravation of the railway transport crisis, and in such circumstances, the only method of meeting the needs of the moment was to organise the transport of food supplies by the maritime route.



Rescue of the Serbian Army - Landing supplies on the Albanian coast.

Development of the supplies of food during the war:

Year	Rations
1915.. .. .	1,450,000
1916.. .. .	3,795,000
1917.. .. .	3,405,000
1918.. .. .	5,678,000

UNIFORMS. — The stores of complete equipment rose from 21,000 in 1914 to 60,000 in 1918.

TRANSPORT AND WORKS OF PUBLIC UTILITY. — For the conveyance of materials necessary for the Navy, there were employed altogether 268,076 railway trucks. This enormous movement was also assisted by the Navy's automobile park, which, in 1918, comprised 484 motor vehicles. In order to facilitate this transport as much as possible, the Navy undertook the carrying out of some huge railway and harbour works, etc., upon which the sum of 157,219,100 lire was expended, distributed as follows:

Harbour works	L. 90,000,000
Railways, roads, etc... ..	» 18,000,000
Telegraphic and telephonic communications	» 14,000,000
Drainage	» 2,000,000
Aqueducts	» 15,000,000
Navigable canals	» 19,000,000

There were laid down 100 kilometres of double railway lines, of which 30 km. were of the ordinary gauge and the remainder of smaller gauge, while 50 km. of new roads were opened, 90 km. improved, 2,500 hectares of land were drained and several important aqueducts were constructed.

Special attention was given to the network of *navigable canals* around Venice, which were cut *ex novo* for the benefit of the Royal Navy, or again brought into use after long neglect, so as to permit torpedo craft, pontoons armed with heavy guns, mine-sweepers,

etc., to navigate unseen in calm waters, sheltered from attack, and then, when necessary, to reach the open sea through the numerous mouths of the lagoons.

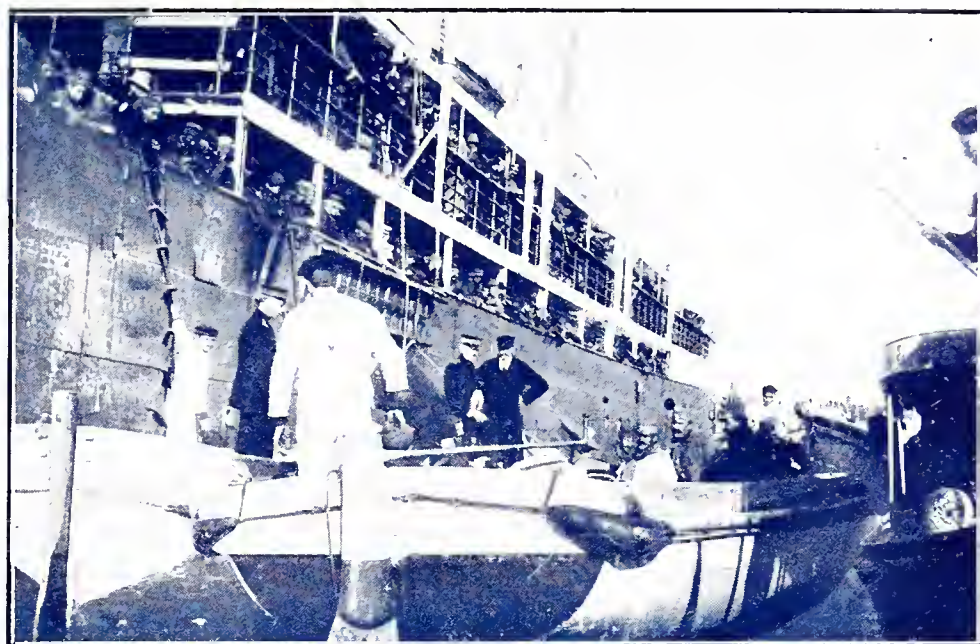
The Army also found these navigable canals of very great assistance. In this connection it is only necessary to mention that in the first years of the war by far the largest part of the supplies for the Third Army passed along these canals, because the railway lines in those regions were so few, defective and congested that they alone could not possibly have coped with the needs of that part of the front.

Fortunately, at the beginning of the war, these works had already made good progress, so that with every effort put forth to complete them promptly, they proved to be of very considerable use both to the military and the naval operations. The tangible advantages which were immediately derived from them confirmed the predictions that had been made, and served as a stimulus to extending their benefits to other regions.

After Caporetto, the Navy and the Army found in these navigable canals a very valuable and, indeed, indispensable logistic element. It is well known, in fact, that in the autumn of 1917, in consequence of the sudden drawing back of the land front, it became necessary to evacuate Monfalcone and Grado immediately, to organise the lagoon front, get ready the means for possible further withdrawals, and for that purpose to prepare the fluvial routes in the rear as far as the mouths of the river Po.

The operations for the evacuation of Monfalcone were effected, in conformity with the capacity of the lines, by the internal canals, while the pontoons armed with guns, the ammunition store ships, the small steamers, the motor-boats and the convoys of all kinds were despatched by the navigable coastal route.

Moreover, this internal line of navigation made it possible to organise the defences of the Venetian lagoon, and to marshal in a few days the artillery and infantry which constituted the Naval Group and the Naval Regiment. At the same time, the lagoon services from Venice towards the Piave were improved and intensively utilised for supply purposes, movements of troops etc., etc. It can be said, indeed, that thanks to the ease of movement of the



Rescue of the Serbian Army: Embarkation at *Valona*.



Men of the *S. Marco* Naval Regiment at the front.

floating armies and their invisibility in that zone, it was possible for the enemy's offensive to be contained in time, and then, after the launching of the Italian counter-offensive, to be driven back.

Transports carried out during the war in the navigable canals.

Year	tons
1915	61,900
1916	524,956
1917	769,500
1918	1,381,900

MEDICAL SERVICES. — At the end of 1914, the Italian Navy had at its disposal nine hospitals with a total of 1916 beds. In 1915 four new hospitals were organised, with another 3,563 beds.

In the Naval hospitals 157,066 soldiers were received for a comprehensive total of 3,029,346 days of treatment.

Furthermore, the Navy had in service four hospital ships with 2,400 beds which transported some 127,727 patients. A further three hospital ships were placed at the disposal of the British Government.



CHAPTER II.

THE ACTIVITY OF THE NAVY

The war at sea.

MASTERY OF THE ADRIATIC. — In the course of the war, ideas and methods of action were evolved *pari passu* with the development of weapons. Thus it happened that the employment of the naval forces distributed over the four principal chess-boards of the theatre of operations — Upper Adriatic, Lower Adriatic, Tyrrhenian Sea, Foreign and Colonial waters — passed through three distinct phases.

First phase (May, 1915-August 1916). — The Italian Navy had to discount its strategical inferiority in the Adriatic. Moving from the numerous bases which lined the shores of the Peninsula, the enemy was able to carry out bombardments with a minimum of risk, but with very sparse results. To these bombardments our fleet was unwilling to retaliate by shelling enemy towns which it could easily have attacked, since the inhabitants of such towns were mainly Italians.

The Italian Navy, therefore, was compelled to engage in hazardous offensive operations, which cost it not a few casualties. On the other hand, the indirect defence of the littoral, effected by nuclei of light forces permanently cruising at sea, represented a costly and at the same time dangerous exposure of the vessels. It was, however, absolutely necessary to submit them to it while the great defensive preparations being carried out on the Italian coasts were

being completed. The naval demonstrations in force, which put both men and material to the severest trial, had also to be intensified when, in December, 1915, in consequence of the military events in the Balkans, it became necessary to save the Serbian Army immediately and at all costs.

The success of this operation, which Italy undertook — the control of all operations in the Adriatic having been entrusted to her by international agreement — was dependent entirely upon the possibility of guaranteeing in the most absolute matter the mastery of the Lower Adriatic.

It is obvious that the material superiority of the Italian Navy was not such as to permit it, even at the cost of a prejudicial exposure of the ships, to keep at sea a naval force at least equal to the presumable maximum with which the enemy could have effected a sortie. On the other hand, it is necessary to remember that the tactical restrictions imposed on the Navy by objectives ashore which had to be defended, created for it a chain of action from which it was only logical to conclude that the enemy would not have failed to derive advantage.

During this phase the Italian naval forces at sea sighted the enemy five times, but as the latter always refused to accept battle he was pursued and bombarded right up to his bases. The most notable of these encounters was that of December 29, 1915, in which the Austrian cruiser *Helgoland* sustained severe damage from gunfire and two destroyers were sunk in the Durazzo minefield.

In the Upper Adriatic, the struggle was characterised by the activity of the lighter craft, which continuously harrassed the enemy by actions carried out either along his coast or against his ports (forcing of Trieste and Pirano, Spring of 1916).

In the Aegaeon, two cruisers took part in the naval operations of the Anglo-French fleet in that sea.

In Lybia, a group of Italian units undertook the defence of those shores and the communications with Italy against the attacks of enemy submarines.

Finally, in the Red Sea and Indian Ocean, light cruisers were stationed for the protection of the Eritrea Colony and Benadir against possible attacks by enemy raiding vessels.



Submarine type F.



Naval guns at the land front.

Losses of the two Navies.

(1st PHASE — 1915-AUGUST 1916).

ITALY.

(*Battleships* 4).

Amalfi	tons	10,000
Garibaldi	»	6,732
B. Brin	»	13,215
L. da Vinci	»	22,380

TOTAL .. tons 52,327

(*Destroyers* 3).

Turbine	tons	320
Intrepido	»	680
Impetuoso	»	680

TOTAL .. tons 1,680

(*Torpedo-boats* 3).

5 PN	tons	120
17 OS	»	120
Serpente	»	210

TOTAL tons 450

(*Submarines* 5).

Medusa	tons	245
Nereide	»	225
Jalea	»	245
Balilla	»	700
Pullino	»	345

TOTAL .. tons 1,760

(*Auxiliary ships* 1).

Città di Palermo	tons	3,415
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GENERAL TOTAL .. tons 59,632

AUSTRIA.

(*Battleships* 0).

(*Destroyers* 2).

Lika	tons	800
Triglaw	»	800

TOTAL .. tons 1,600

(*Torpedo-boats* 0).

(*Submarines* 4).

U 12	tons	236
U 3	»	240
UC 12	»	194
U 6	»	236

TOTAL .. tons 906

(*Auxiliary ships* 6).

Kupe	tons	790
Pozsony	»	395
Andrassy	»	1,553
Albanie	»	1,122
Lokrun	»	927
Adelsberg	»	1,122

TOTAL .. tons 5,907

GENERAL TOTAL .. tons 8,413

Second phase (August, 1916–December, 1917). — In the second period of the war our strategic situation in the Adriatic was radically transformed, thanks to the defensive system which had been put into operation along the coast. As a consequence, our adversary being denied the opportunity of molesting our shores, and the hope of a great naval battle having disappeared, enemy ships showed themselves in the Adriatic more rarely and always more transiently.

In the course of their ceaseless cruises the lighter units of the Upper Adriatic engaged the enemy three times, but on each occasion the latter doubled back to his own bases before the combat had time to yield decisive results. Two noteworthy naval encounters took place, however, in the Lower Adriatic — one consisting of a somewhat fugitive artillery duel, the other (May 15, 1917) being of greater importance and longer duration, and in the course of which two groups of light enemy ships essayed a determined attack on our barrage in the Otranto Channel. The unexpected arrival of Italian forces and of allied forces under the command of Admiral Acton, and the intervention of cruising destroyers, compelled one of the enemy groups to take refuge under the protection of the coastal defences of the gulf of Drin, and confronted the other with the option of a violent gunnery duel. The Austrian ships were pursued to within a few miles of Cattaro, where they were saved by the arrival of forces which were decisively superior to the Italian. But very severe damage was sustained by the Austrians, and the scout *Novara* had to be towed into port.

In the meanwhile, the Italian Navy was developing and intensifying its offensive against enemy ports. Twice more Durazzo was forced, Pola (Fasana) once, and there was a second forcing of Trieste by two coastal motor launches, when the battleship *Wien* was sunk.

The fore-going is only a very summarised account of what was done by the Italian Navy in the Adriatic. But in addition to these activities of a systematic and general character, others of a more particular and intense nature had to be developed in the zones of the Upper Adriatic and the Tyrrhenian Sea.

In the first of these the Navy, following the phases of the offensive developed by the Army (to which had been added in the



Escorting a convoy.



Destroyer flotilla cruising in the Adriatic.

meanwhile a naval section distributed over the marshy coastal zone of Grado and Monfalcone), undertook a series of supporting actions by coastal bombardments and molesting and blockading the enemy, so as to paralyse his initiative and prevent him from launching any counter-action.

During the withdrawal from Caporetto, the naval forces of the Upper Adriatic were called upon to fulfil their natural duty of protecting from the sea the retirement of the troops from the Isonzo to the Piave, and counter-attacking, along the internal waterways, the advance of the enemy. At this period the Austrian Navy made some attempt to bombard the coast near Cortellazzo, to which we immediately replied with counter-attacks, the most notable of these being that of October 16, 1917, by two motor ships against two enemy battleships supported by ten torpedo-boats.

The transport of personnel and material to the new positions, which constituted the extreme defence of Venice, having been carried out in an orderly manner, the naval regiment and the *Raggruppamento Marina*, organically constituted and reinforced, established themselves there firmly, offered a determined resistance to the enemy's attack, and aided very materially in preventing the city from falling into his hands.

In Tyrrhenian and colonial waters, the intensification of the submarine campaign had made it urgently necessary to adopt energetic protective measures. These, as already indicated, were of two classes, namely the installation of a chain of batteries along the littoral, and the concentration of the largest available number of light units (torpedo-boats and scouts) for escorting steamers and attacking submarines.

Losses of the two Navies.

(2nd PHASE — AUGUST, 1916-DECEMBER, 1917).

ITALY.

(*Battleships* 1).

Regina Margherita .. tons 13,215

(*Destroyers* 3).

Audace I tons 620

Borea » 330

Nembo » 320

TOTAL .. tons 1,270

(*Torpedo-boats* 2).

Perseo tons 210

Scorpione » 210

TOTAL .. tons 420

(*Submarines* 3).

Guglielmotti tons 700

W 4 » 400

H 5 » 360

TOTAL .. tons 1,460

(*Auxiliary ships* 4).

Umberto I tons 2,766

Città di Sassari » 3,500

A. Cappellini » 1,500

Padus » 1,400

TOTAL .. tons 9,166

GENERAL TOTAL .. tons 25,531

AUSTRIA.

(*Battleships* 1).

Wien tons 56,00

(*Destroyers* 1).

Wildfang tons 390

(*Torpedo-boats* 1).

II tons 120

(*Submarines* 3).

U 16 tons 190

U 30 » 600

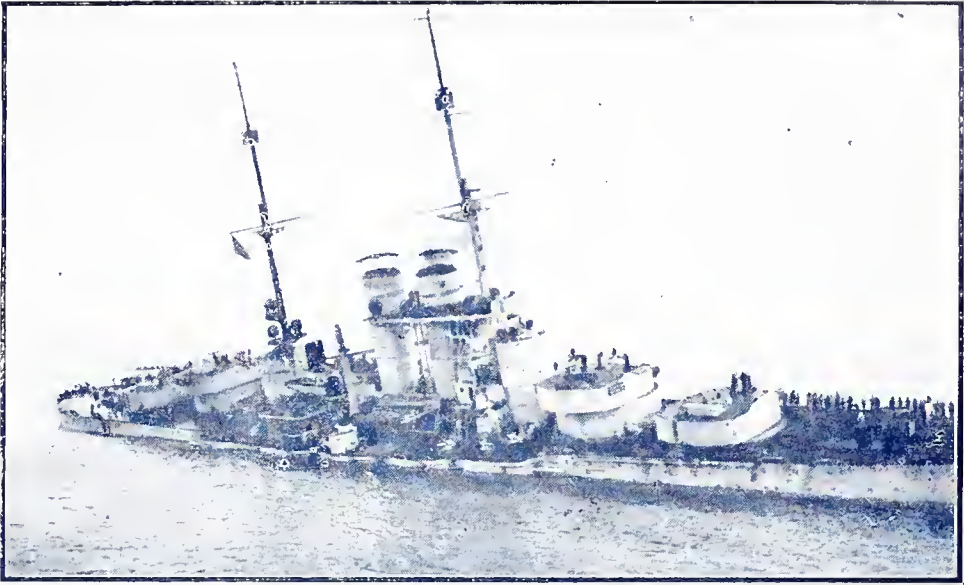
U 98 » 475

TOTAL .. tons 1,265

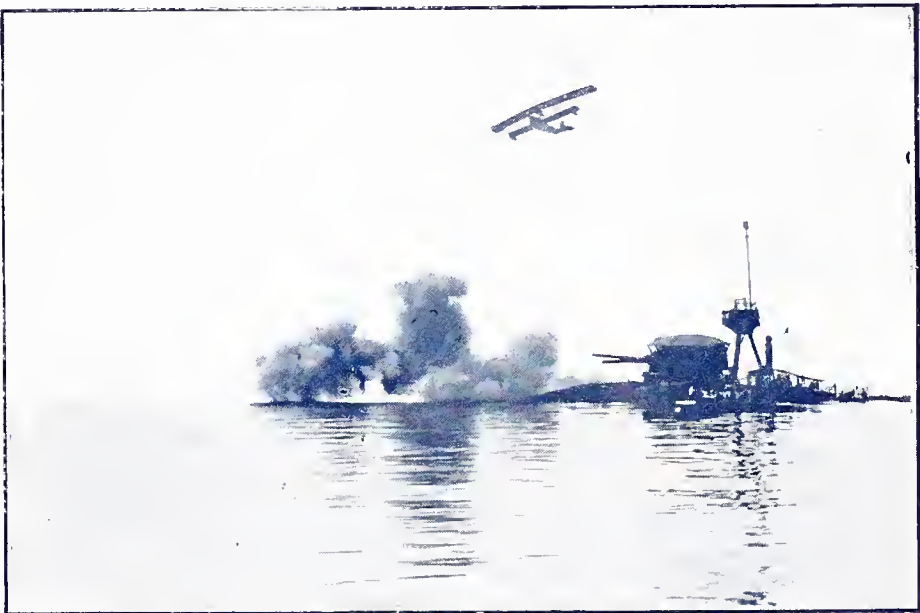
(*Auxiliary ships* 0).

GENERAL TOTAL .. tons 7,375

Third phase (December, 1917-November, 1918). — When in May, 1918, the Italian coastal boats forced the port of Durazzo for the fifth time, and the fortress of Pola for the second time with the “naval tank” *Grillo*, after having violated the port of Buccari in February, the new Commander-in-Chief of the Austro-Hungarian Navy conceived a daring plan. This was neither more nor less than to transfer himself with the whole of the fleet to the Lower Adriatic. The light forces supported by cruisers, would have carried out a raid on the Otranto Channel with the object first



Sinking of the Austrian battleship *Szent Istvan* - Premuda.



Monitor *Cappellini* bombarding Austrian position at the land front.

of destroying the Allied mobile forces on patrol duty there (about ten torpedo-boats, 80 drifters and 12 motor-boats), and then demolishing the great explosive net which the Italian Navy, assisted by the French, was anchoring in the Strait so as definitely to bar the passage to the Mediterranean against submarines. The main body of the Austro-Hungarian fleet would have had to remain in the meanwhile hovering between Brindisi and Valona to meet such Italian forces as might issue from those bases.

The plan was to have been carried into execution on June 11. However, at daybreak on the 10th, two Italian motor launches cruising along the Dalmatian shore, encountered close to Premuda two Austrian dreadnoughts, which, escorted by seven destroyers, were proceeding towards the Adriatic. They were attacked, one of them, the *Szent Istvan*, being sunk.

After this experience, the enemy definitely gave up all ideas of contesting the mastery of the sea.

The naval actions in the Upper Adriatic entered upon a new phase of activity at the beginning of the Autumn of 1918, when, on the Piave front as also on that of Albania, the troops were launching the great offensive which was to lead to final victory. In the Upper Adriatic the light forces performed over again, but in the inverse sense, the work accomplished in the preceding autumn during the retreat, and, exercising pressure from the sea, opened for the army the coastal road to Trieste. About the same time, two officers, swimming into Pola with a special contrivance, sank the dreadnought *Viribus Unitis* in the very interior of the port.

In the Lower Adriatic a naval division consisting of three battleships and three english light cruisers, supported by one dreadnought, five scouts, two destroyers, eleven torpedo-boats, two italian submarines, two light cruisers, twelve british destroyers and two british submarines, eleven american submarine-chasers and four french submarines, bombarded and destroyed, with the help of about 70 aeroplanes, the Durazzo base, thus preventing the enemy forces operating in Macedonia and in retreat from the Vardar, from supporting themselves on that naval base.

About the same period, in the Tyrrhenian Sea, on the Lybian coast, and in the Aegdean the enemy's submarine campaign was

gradually decreasing in effectiveness as the number of units escorting convoys were increased and the protective measures were developed. Among the most important of the latter was the complete closing of the Otranto Channel, the route by which, previously, enemy submarines had been able to reach the Mediterranean.

In the last few months of the war, indeed, it could be said that the activity of the U-boats had been almost completely paralysed.

Losses of the two Navies.

(3rd PHASE — DECEMBER 1917-END OF WAR).

ITALY.

(*Battleships* 0).

(*Scouts* 1).

Rossarol.. .. tons 1,030

(*Destroyers* 2).

Cairolì tons 750

Garibaldi » 388

TOTAL .. tons 1,138

(*Torpedo-boats* 1)

36 PN tons 120

(*Submarines* 0)

(*Auxiliary ships* 6).

Partenope tons 900

Caprera » 1,895

Città di Messina » 3,495

Etruria » 2,280

Sterope » 9,460

Verbano » 2,700

TOTAL tons 20,730

GENERAL TOTAL tons 23,018

AUSTRIA.

(*Battleships* 2).

Szent Istvan.. .. tons 21,000

Viribus Unit's » 21,000

TOTAL .. tons 42,000

(*Scouts* 0).

(*Destroyers* 1).

Streiter tons 400

(*Torpedo-boats* 0).

(*Submarines* 3).

U 23 tons 500

U 83 » 850

U 20 » 260

TOTAL .. tons 1,610

(*Auxiliary ships* 8).

Pelagosa tons 245

Linz » 3,819

Bregenz » 3,905

Euterpe » 2,302

Gorizia » 1,920

Stambul » 3,817

Oceania » 5,897

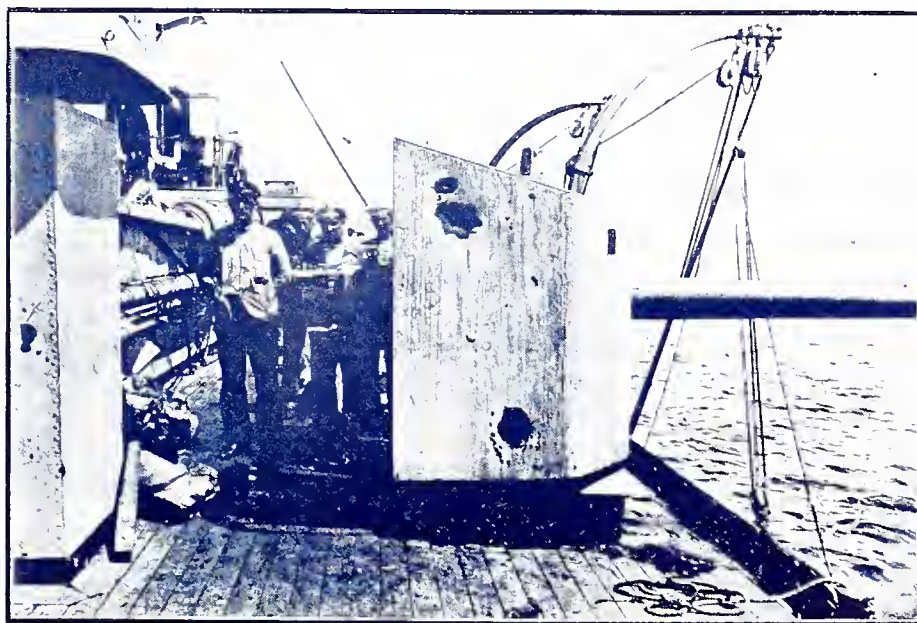
Wien » 7,367

TOTAL .. tons 29,277

GENERAL TOTAL .. tons 73,287



Sinking of the Austrian battleship *Szent Istvan* - Premuda.



Two hits on the shield of n. 6 gun of the *Novara*.

During the war the Italian warships were on the move for a total of two million hours, carrying out 56,000 war missions, and covering a comprehensive distance of 25,000,000 sea miles.

WAR UPON SHIPPING. — The total losses of the Italian mercantile marine — including the merchant ships which were sequestrated — amounted to 872,341 tons gross, distributed as follows:

steamers	.. .. .	238 of 769,450 tons
sailing ships	.. .. .	395 of 102,891 »

These losses, in reality, constituted a very large percentage of the national tonnage. In this connection it should be remembered that the Italian losses represented 49 per cent of the whole commercial fleet, while the English losses were about 41 per cent, and the French 46 per cent.

Merchant fleet losses during the war.

	tons
Argentina	4,275
Belgium.. .. .	85,758
Brazil	25,464
Denmark.	243,707
France	899,358
Great Britain.	7,759,090
Greece	345,516
Holland.. .. .	211,969
Italy	872,341
Japan	120,176
Norway	1,180,316
Portugal	94,946
Russia	183,083
Spain	168,391
Sweden	201,276
United States of America.. .. .	397,059
Other Countries	12,177

TOTAL 12,804,902

The Italian figure of 872,341 tons represents the total losses due to war causes. But to it there should be added: 9 steamers of 57,440 tons sunk during the war period owing to unfortunate accidents caused by the special regulations which were imposed on navigation and by the exigencies of the war (strandings to escape from submarine attacks, collisions while sailing in convoy, etc.). This addition would bring the total up to 955,915 tons.

The financial losses sustained by the nation as a result of the war upon commerce — calculating on the value of ships and cargoes at the moment of loss — amounted to 2,202,733,047 lire. This amount is made up as follows:

Fishing vessels	.. .. .	L.	4,391,706
Sailing ships	.. .. .	»	59,792,591
Italian steamers	.. .. .	»	1,595,467,786
Foreign steamers chartered by Italy (216 steamers sunk, 2 damaged)	.. .. .	»	543,080,964
TOTAL			L. 2,202,733,047

The total weight of the cargoes lost was 1,271,252 tons.

These losses were the more serious in view of the fact that, even in time of peace, Italy imports from abroad four fifths of her necessary articles of consumption, whereas during the war practically the whole of her requirements came by the sea route. In the same period 49,000,000 tons of supplies of various kinds were imported by way of Gibraltar and 2,000,000 tons from the Mediterranean and *via* Suez.

THE PROTECTION OF TRAFFIC. — The vast and multiform work accomplished by the Italian Navy for the purpose of protecting the national maritime commerce can be divided into two distinct periods of time:

1. From the beginning of hostilities until February, 1917, when the *Inspectorate for the Defence of the National Maritime Traffic* (under the Chief of the General Staff of the Navy) was created; and
2. From February, 1917, until the close of hostilities.



The Naval base at Valona.

The first period corresponds with the beginning and development of the submarine war in the Mediterranean and with the beginning and development of the counter-offensive and defensive action of the Allied Navies. This period witnessed the establishment of the first inter-allied agreements — perfected and amplified at successive naval conferences — relating to the division of the Mediterranean into zones, to measures for the protection of maritime traffic, to regulations for navigation and to the service of communications regarding the submarine campaign.

By requisitioning and purchasing drifters, tugs and small craft and by using such torpedo-boats as could be withdrawn from services of a purely war-like character, the Italian Navy organised and gradually rendered more complete and efficient a system for the protection of maritime traffic in the zone for which it was responsible (national waters and those of Libya).

At the same time the work of protecting the coasts, ports and anchorages with batteries and obstructive netting was systematically taken in hand; new weapons and new means of offence and defence against submarines, invented by the Italian and the Allied Navies, were taken into use; a service for dredging the approaches to the ports was organised; and steamships were provided with defensive guns and wireless apparatus.

At the beginning of 1917, when the submarine campaign developed its full fury, the Allied nations clearly recognised that it was necessary to adopt the most energetic measures to counter the German effort. Thus began the second period in the organisation of commerce protection.

To the Commander of the British naval forces in the Mediterranean, assisted by delegated Allied admirals, was entrusted the control of traffic in the whole of the Mediterranean, except in the national and colonial waters of France and Italy.

In view of the urgent need for improving the services for the protection of commerce, the Italian naval authorities created the Inspectorate already mentioned (February, 1917), its functions being to superintend the preparation, distribution and employment of all land, naval and aerial means of offence and defence against

submarines and to provide for the organisation and protection of maritime transports.

The system of coast defence was extended and perfected; airship and sea-plane stations were established; the equipment of steamers with guns and wireless gear was completed; the number of protected ports of refuge was augmented; and many more escorting ships, scouts and motor launches were acquired.

Many reforms and innovations were introduced in connection with setting the course for the navigation of steamers. Instead of the idea of using special patrolled routes, the Inspectorate, as early as 1917, adopted the system of inshore navigation, under the protection of the batteries, thus compelling enemy submarines to attack in the most difficult conditions and in every case with a torpedo. Subsequently, in order to make the best possible use of the naval material available, the Inspectorate brought into use the "convoy" system on all the national sea routes and even on the coast route from Genoa to Gibraltar.

This was the first example of convoying in the Mediterranean. Its efficiency was immediately demonstrated, and in 1918 it was extended to the whole of the allied traffic in that sea.

The effective executive organs — directly responsible to the Inspectorate — were the "Traffic Defence" Commands and offices which were established at the principal national and colonial ports, and a few offices of the Royal Navy instituted at the principal foreign ports for the purpose of facilitating the work of the allied authorities in connection with our merchant ships

To the "Traffic Defence" Commands — each for its respective zone of jurisdiction — was entrusted the task of regulating the movement and formation of convoys, providing for the safety of navigation, supervising the mine-sweeping services along the sea routes and at the approaches to the ports, and directing the action of the anti-submarine forces. The latter can be divided into the three following classes:

- a) naval;
- b) aerial;
- c) land.

NAVAL MATERIAL. — The factor which, for all the Allied Navies and from the very beginning of hostilities, was of the greatest importance in the protection of mercantile traffic, was the numerical strength of the floating material available for escorting duty and the prevention of submarine attack. As a consequence, throughout the war, the Allied Navies concentrated their efforts towards obtaining the largest possible number of anti-submarine units.

In this regard, Italy found herself in a state of great inferiority as compared with her Allies who possessed numerous steam fishing craft (drifters, trawlers, etc.) which, reinforced by torpedo-boats and specially-constructed "sloops" formed the most imposing nucleus of the craft set apart for traffic protection. Our navy was obliged to purchase abroad tugs, trawlers and small steamships, which purchases were necessarily few in number. It had further to requisition and fit out the few similar units existing in Italy and to use such torpedo-boats and destroyers of an antiquated type as it was possible to withdraw from the Adriatic. Finally it had to create new material, to which end an extensive programme for the building of small craft, especially motor launches was put in hand.

The naval material employed for the protection of our commerce, with the exception of the limited number of torpedo-boats and destroyers, was therefore, constructed or requisitioned in the Kingdom, or purchased abroad during the war.

Naval material.

TABLE I.

Escorts Ships	Escort Vedettes	Torpedo-boats	Destroyers	Mine-sweepers and units for harbour protection	Motor Launches	Tota
10	57	40	17	101	167	392

Activity.

TABLE II.

U N I T S	% in use	% ready to move	% fitting out	% at rest
Escort Ships	29.2	17.7	36.7	16.4
Escort Vedettes	25.6	30.4	27	17
Destroyers	20.4	20.1	35.8	23.7
Torpedo-boats	16.6	34.5	33.6	25.3
Mine-sweeper & units for harbour protection	23	43.2	18.3	15.5

AERIAL MATERIAL. — The co-operation of our air force in the protection of shipping began practically in 1917; but it was subject to the influence of military exigencies in the Adriatic theatre of war, which logically had precedence over the Tyrrhenian. Nevertheless the assistance rendered by the air force gradually rose to considerable proportions. At the close of hostilities, in the zone for which the Inspectorate of Traffic was responsible, there were in operation :

23 sea-plane stations with 103 machines; and
5 air-ports with 7 dirigibles.

LAND MATERIAL. — This consisted essentially of batteries and net obstructions for the protection of harbours. The chain of batteries of medium and small calibre guns which was provided in the course of the war for the defence of ports, anchorages, towns and industrial establishments on the coast and at the most salient points of the littoral, constituted a practically complete system for the defence of the national coastline, Tyrrhenian and Ionian. Its development is indicated in the following figures relating to the end of 1918:

Number of batteries	334
Number of guns	702
Naval ratings employed	843
Army rank and file	5,402
Officers (navy and army)	337



Effects of the Italian bombardment at Durazzo.



Italian battle squadron at sea.

During the war, these batteries opened fire 167 times upon enemy submarines, compelling them to desist from attack on steamers.

MILITARY TRANSPORTS. — The Italian Navy, in the course of the war, transported by sea, exclusively for warlike purposes, 1,499,595 men and 202,588 quadrupeds.

The military reverses suffered by the Serbian Army in the autumn of 1915 and its withdrawal to Albanian territory imposed upon the naval forces of the Lower Adriatic a series of important operations which, in chronological order, were as follows :

a) victualling the Serbian Army (begun November 22, 1915; completed May, 1916);

b) evacuation from Albania of the Serbian Army, the Serbian refugees, and the prisoners captured by the Serbs (begun December 12, 1915; completed April 5, 1916);

c) transporting and supplying the Italian expeditionary force in Albania (begun December 1, 1915);

d) removal of the Italian garrison from Durazzo (February 26, 1916);

e) transporting and supplying the Italian expeditionary force in Macedonia (begun August 6, 1916;

The period during which the Navy had to put forth its maximum effort in order to meet the imperious necessities of the moment was that comprised between November 22, 1915 and April 5, 1916, when 1,159 escorting missions were carried out.

1. *Transport of the Serbian Army.* — For the transport of the Italian troops, and for the evacuation of the Serbian troops and Austrian prisoners, 81 steamers, were employed and made a total of 560 voyages.

Military transports of all kinds.

	Men	Animals	Guns	War Material tons
From Sardinia	320,000	—	—	26,000
From the Colonies	37,000	13,000	—	310,000
Assistance in the transport of the American troops in France	63,442	—	—	13,579
Supplying the Serbian Army.. .. .	—	—	—	28,299
Transport of Serbian Army, Serbian refugees and Austrian prisoners.. .. .	260,895	10,153	68	—
Removal of Italian garrison from Durazzo	8,500	—	16	—
Transport and supplying of Italian troops operating in the Balkans	736,403	163,220	485	580,560
TOTALS	1,426,240	186,373	569	958,438

Number of voyages made by steamers in connection with the rescue of the Serbian Army.

	Italian	French	English	Total
Supplying food to Serbia	51	20	3	74
Transport of the Army	151	81	16	248
Transport of the expeditionary force in Albania (down to April 5, 1916) ..	208	—	—	208
Removal of Italian garrison from Durazzo	30	—	—	30
TOTALS	440	101	19	560

It is gratifying to be able to state that the evacuation of the whole of the Serbian Army was accomplished without incurring the loss of a single man. The numbers dealt with were as follows :



Rescue of the Serbian Army
H. R. H. the Duke of the Abruzzi
with the Serbian Crown Prince and the Italian Crown Prince.

	Men	Horses
Serbian Government, Headquarters Staff, Infantry, private personages, etc., transported to Corfu ..	132,873	—
Cavalry transporte to Corfu	13,084	10,153
Troops, invalids, and refugees transported to Marseilles, Bastia, Bizerta, etc.	11,214	—
Troops invalids and refugees transported to Lipari, Ponza, Asinara, etc.	26,343	—
TOTALS	183,514	10,153

Nevertheless, the enemy endeavoured to impede the operations by making 25 aerial attacks and 26 attacks by submarines. Eleven Allied warships and eight steamers were lost, while the enemy had a few submarines and two destroyers sunk.

Number of steamers lost in the course of the operations.

Italian	6
French	2
English	—
TOTAL	8

Number of missions on escort or protection duty carried out by the Allied Naval Forces in the Lower Adriatic.

NATIONALITY	Battleships	Scouts or Cruisers	Destroyers	Torpedo-boats	Submarines	Total
Italian	4	106	270	63	141	584
English	—	77	—	—	158	235
French	—	—	168	—	172	340
TOTALS	4	183	438	63	471	1,159

Number of national and allied warships lost during the operations.

NATIONALITY	Cruisers or Scouts	Destroyers	Submarines	Drifters or Minesweep- ers	Total
Italian	I	I	—	I	3
English	—	—	—	5	5
French	—	I	2	—	3
TOTALS	I	2	3	6	II

Number of enemy warships sunk during the operations.

Austro-Hungarian	—	2	(¹) 5	—	7
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(¹) Two doubtful, three certain.

2. *Evacuation of the Italian garrison at Durazzo.* — About December 20, 1915, for the purpose of reinforcing the bases at which the Serbian Army was being embarked and with a view to facilitating the collection of disbanded men, a detachment of troops was sent overland from Valona to Durazzo. By successive additions of men and material, this force eventually reached the strength of 8,500 men, and 36 guns.

On the completion of the exodus of the Serbian troops from Durazzo, which took place on February 9, 1916, the protective duties of these troops were practically finished. They were accordingly embarked on steamers and transferred in convoy to Vallona. The work of embarkation was carried out not without difficulty, under the enemy's fire, and from an open beach with the constant peril of very heavy seas (February 26, 1916).

3. *Transport of the Italian troops in Albania.* — The possession of the roadstead of Vallona, situated at the entrance to the Adriatic, seemed to be an essential condition for the maintenance of a



Enemy cruisers manoeuvring under the fire of Italian warships.

steady blockade of that sea. For this reason, it had been occupied ever since 1914 by an Italian contingent which was eventually brought up to the strength of 3,000 men.

But since the retirement of the Serbian Army had left the road to Vallona open to the enemy, the necessity arose for garrisoning the place with an adequate expeditionary force. The strength of this force at the outset was 28,000 men, but it soon had to be augmented, and this was done gradually until it reached a total of 97,000 combattant troops.

4. *Transport of the Italian expeditionary force in Macedonia.* — In spite of the reinforcement which the Serbian detachments, reorganised at Corfu and Bizerta, had brought to the Salonika front, which was at first held by Anglo-French troops withdrawn from the Dardanelles, the efficiency of the Allied Army in the East was not such as to permit of operations of any importance being undertaken in that theatre.

The Allies made a request for Italian intervention, and the Government therefore decided, at the beginning of August, 1916, to despatch a division. The strength of the Italian contingent was subsequently increased, until it reached an effective total of 46,000 men, continuously maintained.

The extension of the front of the Allied Army of the East brought its extreme left wing into contact with the right wing of our troops in Albania, thus creating a single Balkan front, stretching from the Adriatic to the Aegæan, along which Italian troops were represented by a total of about 145,000 men.

The assistance of the Allies in the transport of the Italian division to Salonika was limited to the concession of three steamers. The convoys followed the routes already laid down for the passage of ships supplying the Army of the East. In the protection of these routes Italian torpedo-boats played a not inconsiderable part, as to them was assigned the duty of escorting the convoys on two stretches — Taranto-Argostoli and Cerigo Channel-Canal d'Oro — while the section Argostoli-Cerigo Channel was entrusted to the French torpedo-boats, and the Canal d'Oro-Salonika to British destroyers.

The transportation of the Italian troops operating in the Balkans was effected in 3.076 steamer voyages, involving 4,924 voyages under escort.

The totals transported were :

men	..	..	..	..	..	..	..	..	..	736,403
animals	..	..	..	..	..	..	..	..	..	163,220
vehicles	..	..	..	..	..	..	..	..	..	9,157
guns	..	..	..	..	..	..	..	..	..	485
material (tons)	..	..	..	..	..	..	..	..	..	580,566

In the course of the operations 11 steamers were lost, or 0.3 per cent of the total number engaged in the service. The victims numbered in all 20,57, that is to say 0.28 per cent of the total number of men conveyed.

The war in the air.

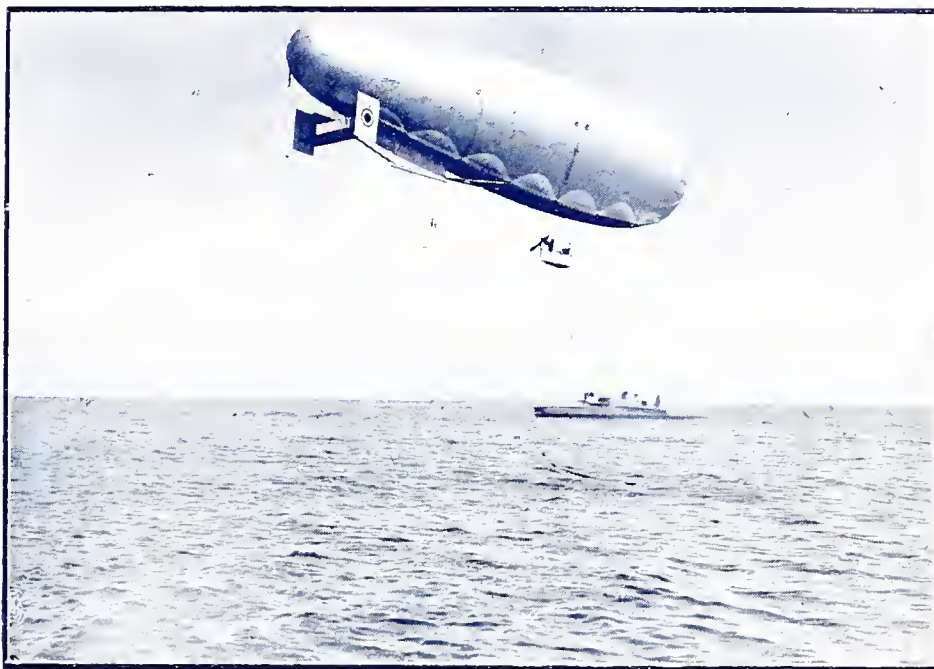
Italy was the first nation to employ aircraft in warlike operations. This was during the Italo-Turkish conflict in 1911-12. But the nature of that war excluded the use of naval aircraft, except for a few operations by airships, which, at that period, were manned promiscuously by a personnel drawn from the army and the navy. It was later on that the idea arose that maritime aviation should have its independent organisation.

At the outbreak of the great war, the situation of the aeronautical service of the navy was as follows :

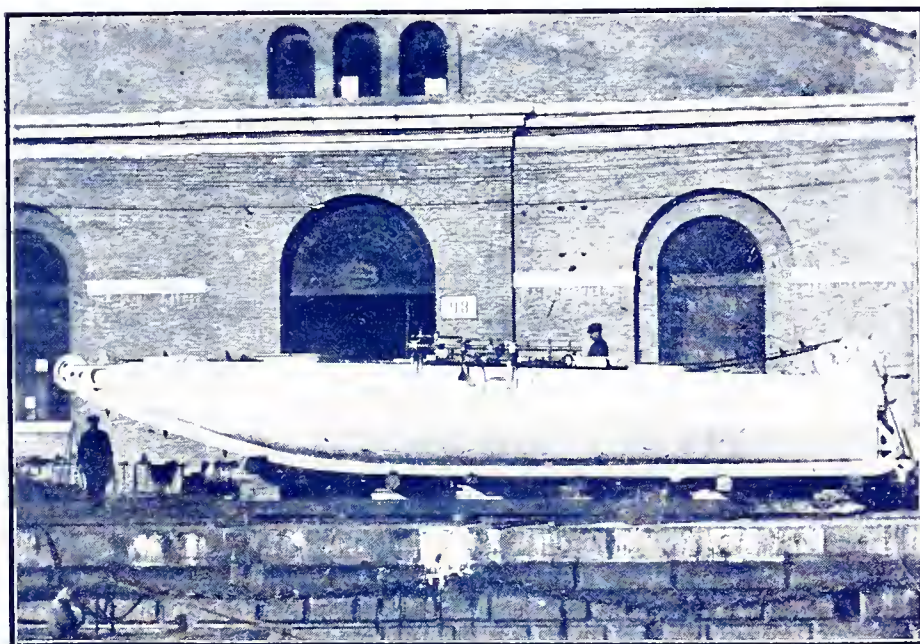
- an air-port at Ferrara, with one airship, type *M* ;
- an air-port at Pontedera (in construction) ;
- an airship, type *V*, at Vigna di Valle, where it remained until the Spring of 1915, awaiting approval ;

14 seaplanes of various types (Borel, Bréguet, Curtiss, Albatros, Farman, Guidoni, etc.), of little military efficiency, divided between the Aviation School at Venice, the squadron at Spezia, and the large warships.

It was necessary, therefore, to reinforce immediately and rapidly the flying material of the navy, at least so far as the Adriatic



Airship of D. C. type and anti-submarine motor-boat.



The "naval tank", *Grillo* which attempted to force Pola harbour, May 14, 1918.



side was concerned, the more so because the warlike events which took place in the second half of 1914 showed with ever increasing emphasis the value of aviation as an adjunct to naval operations, not only for general reconnaissance, but also for the discovery and pursuit of enemy submarines.

I. AEROPLANES. — In Italy, the few firms constructing aeroplanes had already heavy commitments for the Army; but not one was in a position to turn out efficient aeroplane motors. Hence it was necessary to adapt the programme to the meagre resources of the national industry, and to such supplies as were procurable in the open foreign market (United States). The American industry, however, accepting new orders, intensified its production at the expense of good quality.

For all these reasons, when Italy entered the war, the condition of her maritime aviation was certainly not flourishing. It became essential for the country to do everything for itself. This meant the creation of a national industry out of nothing.

So there sprang up all over Italy aeroplane factories and motor works, which were at first engaged on the reproduction of foreign types, but turned afterwards to the construction of purely Italian models. Some of these firms have since achieved notable and indisputable fame. Among them were: "Newport-Macchi", the "S. I. A. M. I. C.", the "Ansaldo San Giorgio", the "Caproni", the "Ducrot", the "Fiat", the "Isotta Fraschini", the "Spa", etc.

Development of aeronautical material.

	Existing at the beginning of the war	Constructed during the war	Scrapped during the war	Existing at the end of the war
Seaplanes	15	1.472	936	552
Aeroplanes	—	158	71	86
TOTALS	15	1.630	1.007	638

Step by step with the preparation of the material, the enrolment and training of the personnel proceeded. The recruiting of pilots, motorists and mechanics took place always on a voluntary basis and with the permission of the authority for each particular branch. The personnel (both officers and men) was drawn from the Navy and Army. This promiscuity was due on the one hand to the shortage of men in the navy, and on the other to the necessity of employing land machines for pursuit duty and big bombing machines which were the best for carrying large quantities of explosive. At the beginning of the war the personnel consisted of 11 pilots and 75 other grades. One school was already in existence at Taranto; later on a second was opened at Bolsena.

Personnel of the air services.

	1915 beginning of war	1916 end of year	1917 end of year	1918 end of war
<i>Naval:</i>				
Pilots (not including pupils)	11	62	119	227
Mechanics, etc.	128	747	1,839	3,098
TOTAL NAVAL	139	809	1,958	3,325
<i>Military:</i>				
Pilots	—	1	79	278
Mechanics, etc.	—	3	1,195	2,854
TOTAL MILITARY	—	4	1,274	3,132
GENERAL TOTAL	139	813	3,232	6,457

2. DISTRIBUTION OF AERODROMES. — Naval aviation is a weapon of offence and defence. It attacks by means of bombardments and reconnaissances over the enemy's territory; it defends by discovering areas that are susceptible to attack of one kind or another and hunting enemy machines. The distribution of aerodromes is governed by these necessities. Hence the centres which are su-

sceptible to attack must be studied in order that the bases of departure shall be at a distance proportionate to the range of the machines which are to be used. It is necessary, also, to take into account the area of the zone which has to be guarded, so that the patrol service, carried out daily, may be adequate and profitable. Finally, it is necessary to provide for the safety of the stations against enemy attacks.

Since the aerial objectives of the navy correspond generally with those which are purely and simply naval, the maritime bases are the best sites for aviation stations, always provided that allowance is made for the factor of convenient distance from the enemy.

In the Adriatic we were confronted by enemy stations comprising the three groupes of Pola, Trieste and Fiume in the north; Sebenico and the Curzolane islands in the centre; Cattaro and Durazzo in the south. It was necessary, therefore, to oppose these by Venice (with an advanced guard at Grado) as a centre of offence, Porto Corsini and Ancona as look-out bases in the north; Varano as a sentry-port on the long stretch of seaboard in the centre; Brindisi and Valona in the south.

The distribution of the major centres for bombing machines — namely at Venice, Foggia and Brindisi — was made in accordance with these ideas, it being taken into account that Cattaro could be attacked either by the Brindisi groups or by those of Foggia. The stations at Otranto and Santa Maria de Leuca owed their existence to the necessity of attacking enemy submarines in the narrowest zone of their passage from their bases to the open sea.

It is certain that naval aviation should not be confined merely to a war of positions. Even if the vast area of water within which naval actions may take place is not so extensive that it cannot nearly always be reached by aeroplanes starting from fixed bases, it is yet necessary to provide one or two mobile stations specially for the service of the fleet. Accordingly provision was made for sea-plane carrying, first on the *Elba* and then on the *Europa*.

Moreover, the employment of aircraft in the defence of maritime traffic, with the object of discovering and attacking enemy submarines on the steamship routes and near the ports, gave rise

to the development of numerous stations on the Sicilian and Sardinian littoral, and on the western Italian seaboard. The distribution of these stations was governed by the position of the ports where the greatest amount of traffic took place, and by the direction of the routes. Thus the factor which mainly counted was the number of routes which it was possible to cover by a system of aerial scouting. The idea generally followed was that the circle of action of one station should be tangential with that of the next.

These stations were naturally of a provisional character, unlike those which were principally organised on the maritime front, but, although small, they were in many respects similar to the major bases. They were, of course, intended to contain a limited number of machines, and generally of only one type (reconnaissance).

In January, 1918, the aviation service in Lybia, which before that date had had only an ephemeral existence, was placed on a properly organised basis. The two seaplane stations of Homs and Tripoli, which were afterwards planned and constructed, provided for scouting over lengthy stretches of seaboard, and even co-operated with land machines in actions against the rebellious natives.

At the end of the war 46 squadrons of aeroplanes were in active service.

3. ACTIVITY OF NAVAL AEROPLANES. — During the war, the aeroplanes belonging to the Italian navy carried out 17,050 military missions, in which altogether 26,569 machines took part. Moreover, 464 attacks were carried out on enemy machines in flight. The war losses were 114 machines, while the victims among the personnel numbered 106.

4. AIRSHIPS AND BALLOONS. — The type of airship with which Italy entered the war was the semi-rigid, a direct descendant of that which had previously been used during the Lybian campaign. The only alterations affected the cubic capacity and the framework, which was made stronger, full advantage being naturally taken of the latest improvements in aeronautical construction. There were no important improvements in the machinery.

This type became the standard for all the Italian-built airships which constituted the principal nucleus of the navy's aerial fleet during the period of hostilities. A few of the non-rigid type and of small cubic capacity, purchased in England, were also in use.

The airships which rendered the most valuable services were of the bombing and scouting types. The former were distinguished by letters according to their respective characteristics: "P", "M", "F2", "V", "A", and varied in capacity between a minimum of 5,000 cubic metres and a maximum of 18,000 cubic metres, with speeds of 55 to 80 km. (about 35 to 50 miles) per hour. The scouting types were lettered "DE", "PV", "O", and "U" and had a capacity of 2,000 to 5,000 cubic metres, and speeds of 50 to 95 km. (31 to 60 miles) per hour. Some types, such as the "O", had a cruising range of 14 hours, and all of them, with the exception of a few of the "DE" class, were of the Italian semi-rigid type.

Statistics showing work done by seaplanes.

	1915		1916		1917		1918		Totals	
Bombardments.. ..	13	12	96	42	686	179	1382	229	2177	462
Reconnaissances or escort over enemy territory	46	42	130	74	875	389	2416	891	3467	1396
Aerial defence or pursuit.. .. .	14	9	50	21	261	103	782	298	1107	431
Scouting	232	198	1324	721	3704	1679	4173	1778	9433	4376
Traffic defence	—	—	—	—	2337	2337	8048	8048	10385	10385
TOTALS	305	261	1600	858	7863	4687	16801	11244	26569	17050

NOTE.—The figures in heavy type indicate the number of actions; the others show the number of machines employed.

Attacks against enemy ships in motion.

TYPE OF SHIP	1915	1916	1917	1918	Total
Squadron units	—	—	137	10	147
Scouting vessels	—	—	4	8	12
Torpedo craft	1	6	79	71	157
Submarines	3	4	31	22	60
Auxiliary ships	3	10	32	43	88
TOTALS	7	20	283	154	464

Losses of personnel.

	Killed
Officers	34
Petty officers & seamen	72
TOTAL	106

Losses of machines.

	Number
Lost in action	37
Lost by damage in action ..	77
Lost by damage in flight ..	290
Discarded for efficiency	603
TOTAL	1,007

The increase in the number of airships and balloons necessitated a corresponding development in the system of aerodromes, the number of which was 27 at the date of the armistice. The crews of the airships and the staffs attached to the aerodromes, numbering 251 in 1915 had reached a total of 2,573 in 1918.

During the war 68 bombing flights were carried out during which 39,139 kilogrammes (nearly 40 tons) of high explosive were dropped; further 1,355 scouting flights were made, covering a total distance of 252,563 km. (156,000 miles).

Statistics relating to airships and balloons.

	Bombing Airships	Scouting Airships	Captive Balloons	Ballonets for aerial obstruction
Ready at beginning of war	3	—	2	—
Built or assigned to Navy:				
in 1915	1	—	1	—
,, 1916	3	7	3	—
,, 1917	2	11	6	—
,, 1918	4	18	4	—
TOTALS at time of armistice	13	36	16	150

Personnel of airships and attached to aerodromes.

Personnel of transport

DATE	NAVAL					MILITARY					General total
	Officers		Men		Total	Officers		Men		Total	
	(a)	(b)	(a)	(b)		(a)	(b)	(a)	(b)		
May 25, 1915	6	1	14	225	246	3	—	2	—	5	251
January 1, 1916	11	4	12	380	407	3	—	1	—	4	411
„ 1, 1917	21	6	44	735	806	2	7	2	4	15	821
„ 1, 1918	23	7	60	1150	1240	45	9	30	410	494	1734
noevmb. 4, 1918	23	9	73	952	1057	66	20	54	1366	1506	2563

Losses of the personnel of airships in action.

ROYAL NAVY.						ROYAL ARMY.					
<i>Officers :</i>						<i>Officers :</i>					
killed					4	killed					5
wounded					1	wounded					1
prisoners					5	prisoners					—
<i>Men :</i>						<i>Men :</i>					
killed					2	killed					4
wounded					—	wounded					—
prisoners					8	prisoners					—
TOTAL						TOTAL					
20						10					
GENERAL TOTAL						30					

(a) Pilots and flight services. — (b) Ground staffs, establishments, etc.

Losses of airships.

	Bombing Airships	Scouting Airships	Captive Balloons
Lost in action	3	—	2
Lost by attacks on hangars, etc.	2	—	—
Lost by accident	1	1	—
Laid up before the Armistice	1	22	1
Transferred to the Army	—	1	—
Transferred from bombing to scouting service . .	3	—	—
Efficient at time of Armistice	3	12	13

SOME COMPARISONS WITH AUSTRIAN NAVAL AIR SERVICE. — During the war the Austrian Navy established 16 aerodromes at which they maintained in effective use an average of 223, aeroplanes, and altogether they fitted out 662. They performed 1,063 military missions with a comprehensive total of 3,312 aeroplanes.

Summary of missions carried out by Austrian aeroplanes.

SPECIES OF MISSION	1915		1916		1917		1918		Total	
Bombing	141	101	790	154	797	153	245	55	1973	463
Reconnaissance and escort	50	38	91	47	212	77	193	86	546	248
Aerial defence and pursuit	10	8	91	44	114	61	123	44	368	157
Exploration	55	33	245	101	72	34	53	27	425	195
TOTALS	256	180	1217	346	1225	325	614	212	3312	1063

NOTE. — The figures in heavy type indicate the number of actions; the others show the number of machines employed.

Attacks upon warships at sea, 253; losses from warlike causes, 241 machines.



Sinking of the Austro-Hungarian flagship *Viribus Unitis* at Pola.

Attacks by Austrian airships on naval units at sea.

	1915	1916	1917	1918	Total
Battleships & monitors	3	—	13	—	16
Scouts	6	—	2	—	8
Torpedo-boats	11	81	39	13	144
Submarines	7	43	1	9	60
Auxiliary ships	3	15	7	—	25
GENERAL TOTALS	30	139	62	22	253

Summary of the condition of Austrian aeroplanes.

	Number
Lost from warlike causes	132
Lost owing to accidents	109
Scrapped owing to long usage or inefficiency.. .. .	189
Existing at close of the war	232
TOTAL number of machines in service in the cours of the war ..	662

Italian attacks on Pola.

Number.. .. .	41
Machines used	391
Bombs dropped	677

Austrian attacks on Venice.

Number	36
Machines used	209
Bombs dropped	736

Italian and allied bombardments in the Adriatic zone.

YEAR	ITALIAN			ALLIED			Totals	AUSTRO-HUNGARIAN
	Naval Aero-planes	Naval Dirigibles	Army Aero-planes	English	French	American		
1915 ..	13	13	—	—	21	—	47	141
1916 ..	96	4	73	—	34	—	207	790
1917 ..	686	5	163	219	13	—	1,086	797
1918 ..	1,382	46	59	50	1	19	1,557	245
TOTALS	2,177	68	295	269	69	19	2,897	1,973

Reconnaissances of enemy aviation in Adriatic.

YEAR	ITALIAN			ALLIED			Totals	AUSTRO-HUNGARIAN
	with seaplanes	with dirigibles	with Army aeroplanes	English	French	American		
1915 ..	46	—	3	—	10	—	59	50
1916 ..	130	—	15	—	34	—	179	91
1917 ..	875	—	4	149	112	—	1,140	212
1918 ..	2,416	—	21	7	360	27	2,831	193
GENERAL TOTALS	3,467	—	43	156	516	27	4,209	546

Aircraft losses compared.

YEAR	ITALIAN			ALLIED			Totals	AUSTRO-HUNGARIAN
	Seaplanes	Dirigibles	Army Aeroplanes	English	French	American		
1915 ..	1	2	—	—	1	—	4	8
1916 ..	15	—	3	—	2	—	20	20
1917 ..	34	2	3	3	1	—	43	51
1918 ..	64	1	1	23	1	1	91	53
GENERAL TOTALS	114	5	7	26	5	1	158	132

The navy at the front.

Although the principal duty which the Navy had to perform was to secure and maintain the mastery of the sea, circumstances and the peculiarities of the war eventually compelled it to develop a secondary, but not less important, action in co-operation with the Army in the land campaign. This assistance, which was closely associated with the vicissitudes of our arms, can be divided into two well defined periods — from the beginning of the war until the retirement from Caporetto (May, 1915-October, 1917); and from the latter date until the Armistice N(ovember, 1918).

In the first period the Royal Navy performed a multitude of duties. It had to occupy and garrison the “redeemed” seaboard and place it in a state of defence, and also to furnish guns, munitions and men for the right wing of the Third Army. In addition to this it assisted with monitors and armed pontoons in the bombardment of land objectives, while with the warships and torpedo-boats distributed in the Upper Adriatic it provided protection against attacks by the enemy’s fleet. In the second period, the Naval Brigade was sent to occupy positions on the Lower Piave, and assistance was also given in the preparatory works in the rear as far as the Adige. Thus, with a contribution of 13,000 men and some hundreds of guns of all calibres, the navy’s help was mainly of a territorial nature. It culminated in the effective participation of naval sections in the battle of the Piave, and that of Vittorio Veneto, and in the rapid and tempestuous occupation, while the state of war still lasted, of territory and islands along the whole of the opposite shore of the Adriatic.

The coastal region of the Lower Isonzo, between Grado and Monfalcone, in which the seamen had to fight, was, owing to the situation and nature of the ground, one of the most unfortunate of our front, being marshy, malaria-ridden, and without roads or resources of any kind.

It was dominated by the rocky heights of the Carso, whence the enemy, who occupied them in force, directed the full weight of his heavy artillery on the marshland below, which was destitute of any shelter and frequently subject to the floods of the river. In

such conditions the emplacement and service of the heavy and medium sized guns necessary for replying to those of the enemy, and the action of the smaller weapons accompanying the land forces on their prolonged and sanguinary conquest of the Carso, constituted a problem which was not equalled or even approached in difficulty in any other zone of the war.

In spite of this, however, the number of guns installed by the Navy, whether on terra firma or on pontoons stationed in the canals of the sector under naval occupation, was gradually increased until it reached the total of 153 pieces :

Guns of large calibre	..	..	..	..	..	Nº	18
Guns of medium calibre..	..	..	..	..	..	»	48
Guns of small calibre	..	..	..	..	..	»	75
Mortars (11 in.)..	..	..	..	..	..	»	12
TOTAL							Nº 153

But all the powerful works prepared by the Navy between Grado and Monfalcone had to be swiftly demolished when, in October, 1917, consequent upon the enemy offensive at Caporetto, the front had to be withdrawn from the Isonzo to the Piave. In three days of incessant labour, despite the inclemency of the weather and the rush of events, the salvage of all the more important material was effected, this being transported, first along the internal canals and then by sea to Venice. The reports which arrived from the invaded Veneto assumed a very grave and embarrassing form. The enemy was advancing rapidly, with his patrols pressing close on the heels of our sections in retreat.

Over Venice in these days, particularly in the first fortnight of November, there hung the terrible and imminent threat of invasion, and it became necessary, with feverish solicitude, to adopt all possible measures for placing the north lagoon in a state of defence. The Chief of the Naval Staff was on the spot and made hurried plans for saving the City of the Lagoon.

The troops which at that time were at the disposal of the Fortress of Venice consisted chiefly of sections of territorial militia who had never been under fire, and the Third Army was unable to send any reinforcements. Thus the Maritime Military Command



Venice

of Venice had to make provision for the last defence with such means as were available.

Orders were given that, with naval men coming from the old front, with artillery brought back from the Isonzo and such other guns as could be obtained, bodies of infantry and artillery should be organised and sent to the Lower Piave and the lagoon to form the extreme right wing of the Army. With the sailors who had assisted in the defence of Monfalcone, the " Monfalcone " battalion was organised, and this unit was the first to be sent to the front. There followed at short intervals the " Grado " and " Caorle " battalions, consisting partly of soldiers from the old front and partly of others belonging to the Venetian Detachment. A fourth battalion made up of men drawn from the defences of Spezia and Messina, and a fifth supplementary battalion including sailors from the battle squadron, completed the Naval Regiment, which had a total strength of 4,036 sailors and 149 officers.

In a similar manner the re-organised artillery *Raggruppamento Artiglieria* was constituted in the first instance out of the guns brought back from the Isonzo and was afterwards reinforced by guns from the navy and distant points, the total being 150 pieces. Its strength was 213 officers and 3,800 seamen.

After provision had been made as rapidly as possible for the defence of Venice, the organisation of a line of defence between the Po and the Adige was taken in hand. This was intended to serve as a strong barrier against the further advance of the enemy in the event of his not having been stopped on the Piave. In the coastal zone, more especially in the delta of the Po, were concentrated some 6,000 seamen who carried out all the work of digging trenches and making gun emplacements in readiness for an eventual retirement of the naval companies.

Both the Naval Regiment and the *Raggruppamento*, comprising an organic unit which was called the Naval Brigade, were placed at the disposal of the Third Army, commanded by H. R. H. the Duke of Aosta.

The *Raggruppamento* was stationed in the northern lagoon of Venice and along the beach of Cortellazzo, with a radius of action from San Donà di Piave to the sea. To the Naval Regiment was entrusted a section of the front comprising the Cavetta Canal from

its junction with the Piave to the sea. Later on this front was gradually extended.

Other bodies of naval artillery (consisting of two 11.9 in. guns and some batteries with 41 guns of small calibre) were established by the Navy for the defence of Lake Garda, on which operated also a flotilla of six small armed steamers, some lake torpedo-boats and a squadron of motor launches. Furthermore the navy assisted in strengthening the land front in Albania by installing various batteries which numbered in all 31 guns of medium calibre. The total strength of the naval forces employed on the land front was about 13,800 men.

On June 15, 1918, the Austrian Army began the great offensive from Montello to the sea for which it had been preparing for some time with the greatest care. According to Austrian calculations it was to have smashed the Italian line. Nearly all the troops in the Empire took part in this movement. They had been collected from all the other fronts and massed against the Italians, who, except for a British division, a French division, and an American regiment, had to withstand the shock unaided.

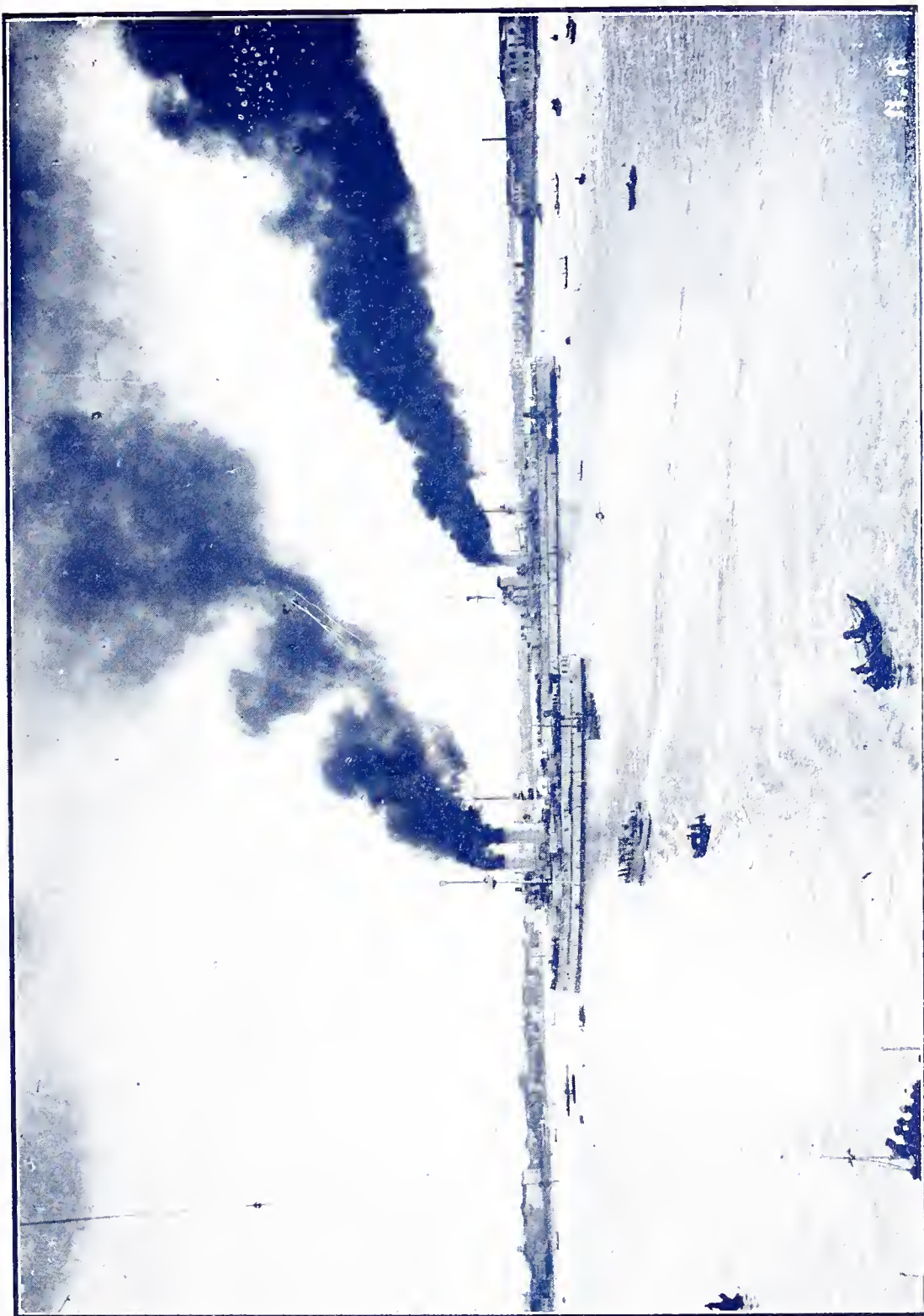
After eight days of heavy fighting, the Austrian Army was defeated and driven back across the Piave.

Posted at the extreme right wing of the Army, the Naval Brigade rendered valuable service in the battle of the Piave. In the first place, it helped to resist the initial shock, and afterwards occupied a large sector of territory. In this action it took 500 prisoners and had 9 officers and 133 men killed, 14 officers and 453 men wounded.

Meanwhile the Army, behind its strong positions on the Piave, was preparing for the thrust which was to bring about the defeat of the Austrian forces. The Naval Brigade, having forced the Piave at the beginning of the battle of Vittorio Veneto, led the advance on the Tagliamento. It turned the Austrian left wing, and formed an extremely mobile advanced guard for our troops who were hard on the heels of the Austrians.

The inevitable consequence of the rout of the Austro-Hungarian Army was the demand for an Armistice (November 3, 1918).

The Armistice came into force on the following day, but before that the Navy had begun the occupation of various islands and places on the opposite shore of the Adriatic.



Austrian warships being taken into Venice as war-spoil (March 26, 1919).

APPENDIX

Losses.

In the course of the war, the Italian Navy lost 5 battleships, 1 scout, 8 destroyers, 6 torpedo-boats, 8 submarines and 11 auxiliary vessels, representing a total of 108,281 tons. To these should be added the losses of the mercantile marine amounting to 955,000 tons and those of the naval air service, namely, 267 aeroplanes and 7 airships.

The losses among the naval personnel were 167 officers and 2,898 men killed, which represents more than four per cent of the total effectives — a percentage which cannot be compared with the losses sustained at the front by the Army, because war at sea has absolutely different characteristics from those of war on land.

Expenditure.

An idea of the burden which the Treasury had to sustain in order to finance the Maritime Administration during the war may be gained from the fact that the expenditure for the fiscal years from 1915-1916 to 1918-1919 amounted to 4,114,000,000 lire, and including the period of neutrality, to 4,814,000,000 lire. Taking into account, however, the expenditures directly arising out of the war in the budget for 1919-1920 (about 1,700,000 lire) one arrives at a total of 6,514,000,000 lire. This enormous sum represents a burden of about 3,000,000 lire for each day of the war.

THE LEADERS

Ministers of Marine :

Vice-Admiral VIALE, until 24-9-1915 ;
Vice-Admiral CORSI, until 16-6-1917 ;
Rear-Admiral TRIANGI, until 16-7-1917 ;
Vice-Admiral DEL BONO, until the end of the war.

Chiefs of Staff :

Vice-Admiral THAON DI REVEL, until 30-9-1915 ;
Vice-Admiral CORSI, until 16-2-1917 ;
Vice-Admiral THAON DI REVEL, until the end of the war.

Commander-in-Chief of the mobilised naval forces :

Vice-Admiral THAON DI REVEL, from 16-2-1917 until the end of the war.

Commanders-in-Chief of the fleet :

H. R. H. the DUKE OF THE ABRUZZI, Vice-Admiral, until 5-2-1917 ;
Rear-Admiral CUTINELLI (interim) from 5-2-1917 to 23-6-1917 ;
Vice-Admiral CERRI (interim) until 11-3-1918 ;
Vice-Admiral CUSANI VISCONTI, until the end of the war.

Naval Commanders at Brindisi :

Vice-Admiral PRESBITERO, until 16-10-1916 ;
Vice-Admiral CUTINELLI RENDINA, until 26-5-1916 ;
Vice-Admiral CAGNI, until 10-2-1917 ;
Rear-Admiral ACTON ALFREDO, until 13-3-1918.

Commanders at Valona :

Vice-Admiral MILLO, from 17-5-1916 to 8-2-1917 ;
Rear-Admiral SOLARI, until 14-3-1917 ;
Rear-Admiral CASANUOVA, until 7-6-1917 ;
Rear-Admiral MORINO, until 20-11-1917 ;



Nazario Sauro.

Rear-Admiral ROMBO, until 8-1-1918 ;
Rear-Admiral MARZOLO, until 6-3-1918 ;
Rear-Admiral SIMONETTI, until 15-10-1918 ;
Rear-Admiral LOBETTI BODONI, until the end of the war.

Commanders-in-Chief of the department of Venice :

Vice-Admiral GARELLI, until 7-7-1915 ;
Vice-Admiral CUTINELLI, until 16-10-1915 ;
Vice-Admiral THAON DI REVEL, until 8-2-1917 ;
Vice-Admiral CITO DI FILOMARINO, until 14-3-1918 ;
Vice-Admiral MARZOLO, until the end of the war.

Commanders-in-Chief of the department of Taranto :

Vice-Admiral CERRI, until 23-6-1917 ;
Vice-Admiral SOLARI, until 12-3-1918 ;
Vice-Admiral ACTON ALFREDO, until the end of the war.

Commanders-in-Chief of the department of Naples :

Vice-Admiral LEONARDI CATTOLICA, until 1-7-1916 ;
Vice-Admiral PRESBITERO, until 14-2-1917 ;
Vice-Admiral MILLO, until the end of the war.

Commanders-in-Chief of the department of Spezia :

Vice-Admiral DEL BONO, until 16-12-1915 ;
Vice-Admiral VIALE, until 1-7-1915 ;
Vice-Admiral CITO DI FILOMARINO, until 7-2-1917 ;
Vice-Admiral CAGNI, until the end of the war.

Inspectors of Shipping Defence :

Rear-Admiral MORTOLA, from 8-3-1917 until 21-2-1918 ;
Rear-Admiral LOBETTI BODONI, until the end of the war.

THE HEROES

Gold medals for bravery (*in memoriam*):

NAZARIO SAURO, Lieutenant of auxiliary vessel. Istrian volunteer. Taken prisoner by the Austrians after the submarine *Pullino* had stranded on the reef at Galiola on august 1, 1916. Executed at Pola, August 10, 1916.

DEL GRECO CARLO, Commander of submarine *Nereide*, attacked by superior force on August 5, 1915, at Pelagosa ; bravely accepted battle and died.

GANDOLFO LORENZO, Commander. By his ready intervention during the unloading of munitions at S. Bartolomeo di Spezia on July 3, 1916, succeeded in averting an incalculable disaster, but at the sacrifice of his own life.

GARASSINO GARBARINO GIUSEPPE, Lieutenant. After a daring career full of sacrifice during which he was constantly opposing the enemy's superior air forces, was shot down by an Austrian pursuing aeroplane when returning from an heroic enterprise over Pola, on February 11, 1917.

BAFILE ANDREA 1st Lieutenant. In command of a battalion of the Naval Regiment S. Marco on the land front. On the eve of an important action (March 11, 1918), went with a patrol of "arditi" to the other side of the Piave to reconnoitre the enemy positions. Having remained until daylight searching for one of his own men was mortally wounded. Had sufficient strength of mind to report what he had seen, and before expiring said he was satisfied to have been able to kiss the soil of the fatherland trodden by the enemy's foot.

FARINATA DEGLI UBERTI PAOLO, Commander of submarine *Ba-lilla*. Attacked on July 14, 1916, in enemy waters by two torpedo-boats and practically unable to move owing to damage to the hull and steering gear, brought all his weapons of offence into action and then sank his ship, his heroic attitude and that of the crew of the submarine arousing the profound admiration of the enemy.

Gold medals for bravery (to the living):

RIZZO LUIGI, Junior Captain ; two gold medals. In command of a squadron of motor-launches, led two of them on Dec. 10, 1917, to force the closely guarded waters of the port of Trieste, entered the port, and sank the Austrian

battleship *Wien*. In command of a squadron of motor-launches, while a section of these he explored the enemy waters in the vicinity of Premuda ; at daybreak on June 10, 1918, perceiving an enemy squadron consisting of two battleship and 7 torpedo-boats, he daringly drove in among the latter and fired his torpedoes at the *Szent Istvan*, sinking her.

AONZO GIUSEPPE, *Guardiamarina*. In command of a motor-launch, was with Rizzo in the action off Premuda on June 10, 1918, and assisted him with great courage in his rapid enterprise.

CIANO COSTANZO, Post-Captain. On Feb. 11, 1918, led an expedition of three motor-launches into the interior of the Quarnaro and reached the Bay of Buccari, which the enemy regarded as perfectly secure against our attacks.

PELLEGRINI ANTONIO, Commander ;

MILANI ANTONIO, Second torpedoist ;

ANGELINO FRANCESCO, seaman ;

CORRIAS GIUSEPPE, stoker.

Composed the crew of the "naval-tank" *Grillo*, with which, during the night of May 14, 1918, they succeeded in overcoming nearly all the obstructions in the enemy port of Pola. Discovered and subjected to a concentrated fire, their first and only thought was to fire their torpedoes and sink their craft so that it should not fall into the enemy's hands intact.

CASAGRANDE EUGENIO, Lieutenant. In command of a squadron seaplanes. Between July 30 and October 29, 1918, carried out 15 dangerous missions with his seaplane, carrying our spies into the enemy's lines and recovering them when their work was done. He moored in the internal canals beyond the Piave in a zone closely watched by patrols in the enemy's rear, and, by his daring and readiness, often succeeded in avoiding them and gaining his object.

ROSSETTI RAFFAELE, Lieutenant-Colonel of Naval Constructors;

PAOLUCCI RAFFAELE, Surgeon-Captain in the R. Navy;

With an entirely new and automatic contrivance of very small dimensions, they courageously swam into the port of Pola and, after a most laborious journey fixed a mine to the hull of the Austrian flagship *Viribus Unitis*, which sank (November 1, 1918).

GOIRAN ILDEBRANDO, Commander.

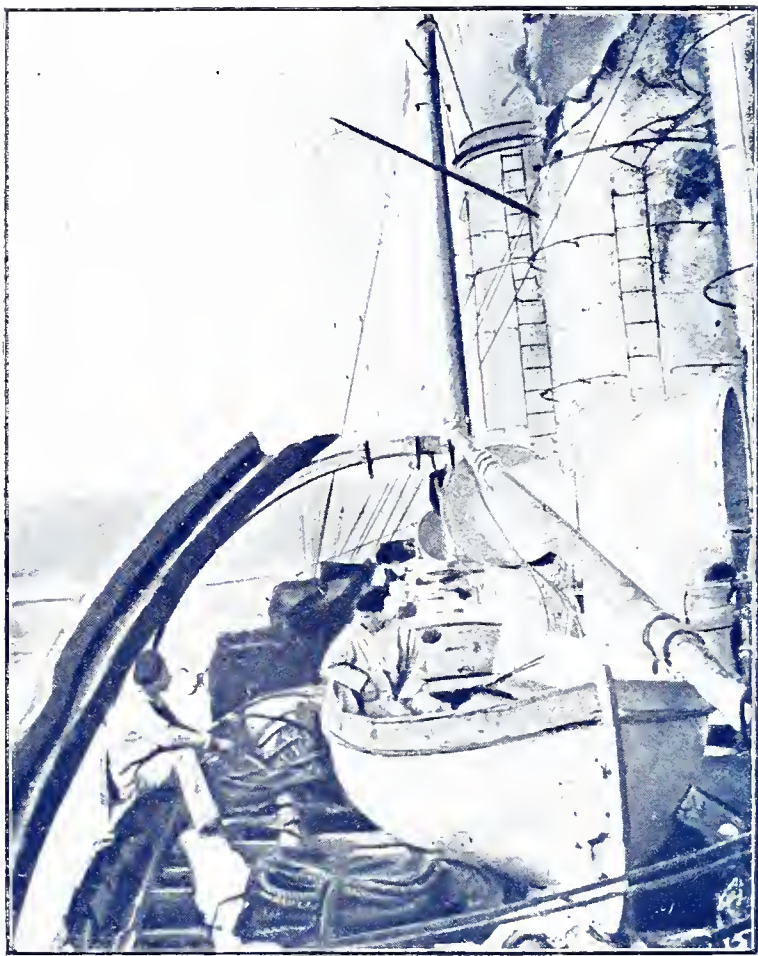
Was in command of a motor-launch with which, assisted by torpedo-boat 9, P. N., on the night of November 2, 1916, he succeeded in overcoming all the obstructions in the Fasana Channel (Pola). He waited for nearly three hours in enemy waters until he found a suitable mark at which to aim his torpedoes.



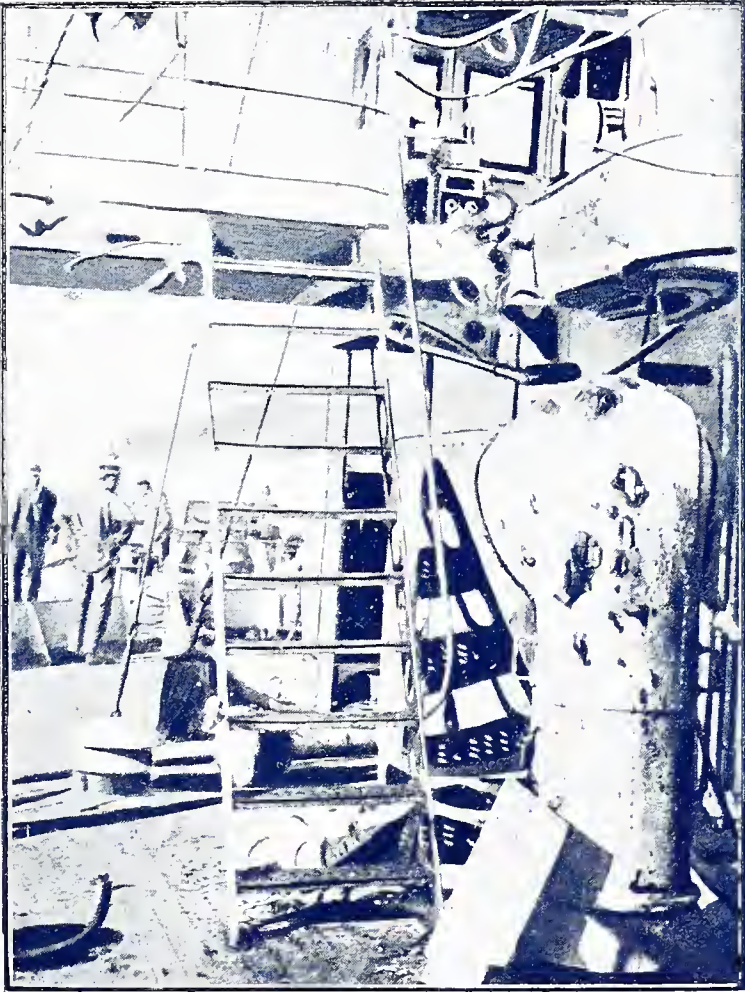
AUSTRIAN PHOTOGRAPHIC DOCUMENTS ON THE NAVAL
ACTION OF 29th DECEMBER, 1925.



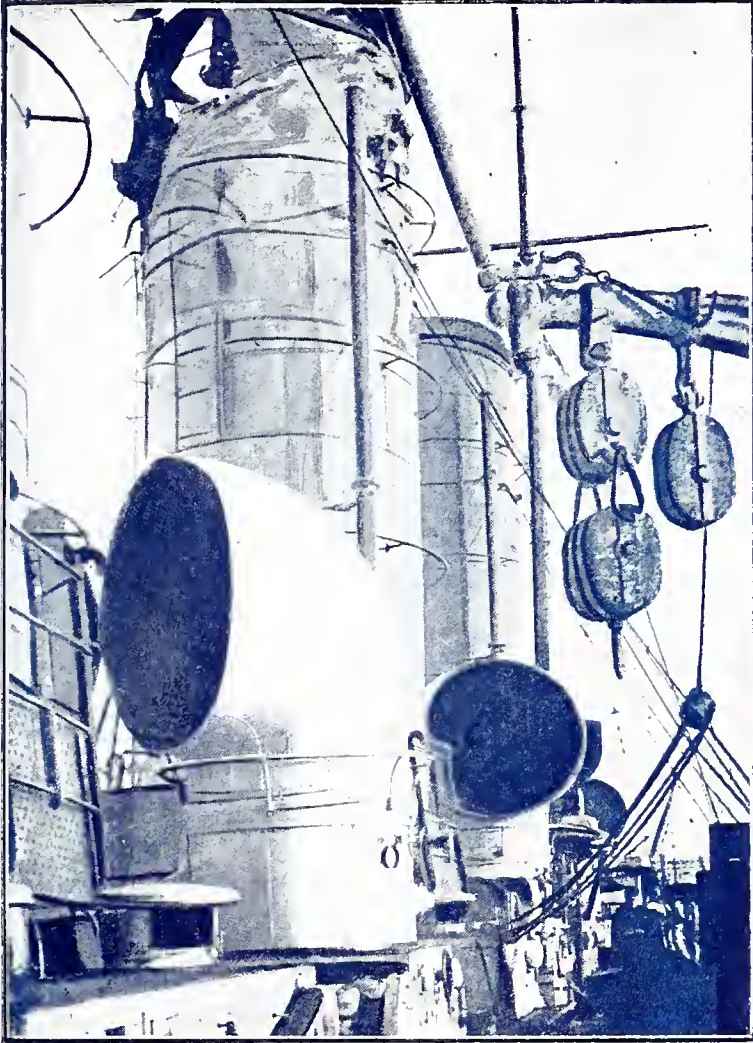
The pursuit of the *Helligoland*.



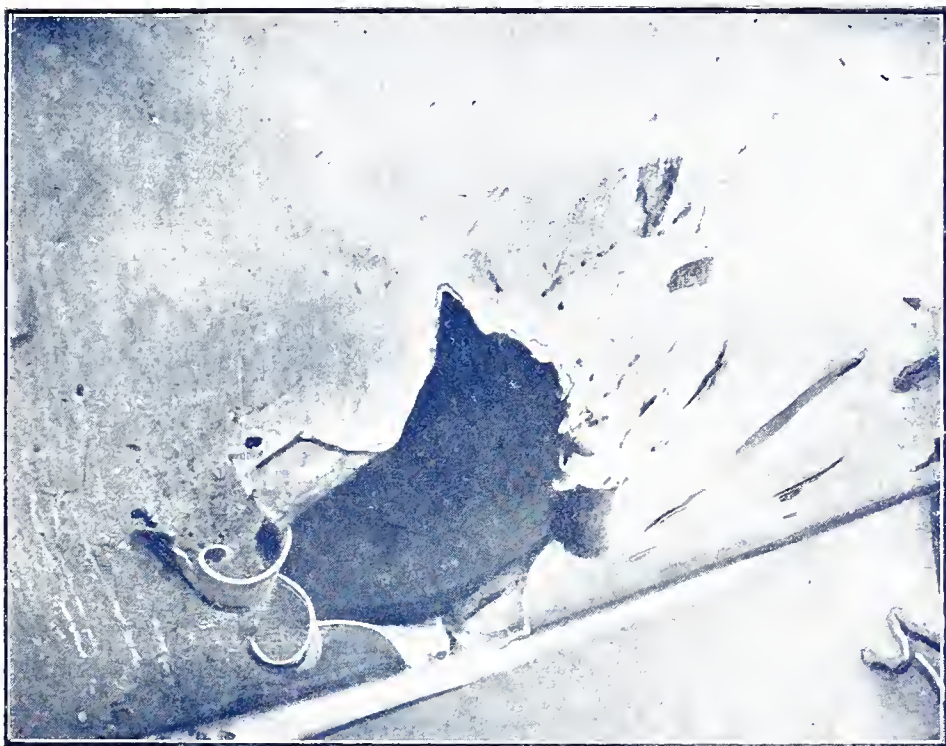
Damage sustained by the *Heligoland*. First gunshot.



Other effects of first gunshot.



Fourth gunshot.



Sixth gunshot.

ENCLOSED DOCUMENTS

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Chart showing activity of the Italian Navy.	1
Chart showing the occupations of territory and islands carried out in the Adriatic before and immediately after the Armistice by or under the protection of the Royal Italian Navy.	2
Italian and allied fleet used for the rescue of the Serbian Army (December, 1915 - April, 1916).	3
Chart showing the batteries of guns of medium and small calibre placed along the shores of the Tyrrhenian and Ionian seas for the protection of maritime traffic.	4
Distribution of the flotillas and squadrons of motor launches used for the protection of the national maritime traffic and for the pursuit of submarines.	5
Gross tonnage of Italian steamships sunk by enemy action from May 24, 1915, to October 31, 1918.	6
Number of Italian steamers sunk in all seas by gunfire, torpedo, mine or bomb from May 24, 1915 to October 31, 1918.	7
Comparative activity of various types of ships during the war.	8
Diagram of the total number of voyages (war or escort) carried out during the war by the various units of the Royal Italian Navy.	9
Diagram showing the total number of miles covered by the different units of the Royal Italian Navy during the war.	10
Number of ships constituting the active naval forces.	11
General scheme of defensive and other measures employed.	12
Harbour works carried out by the Royal Italian Navy in the various ports of the kingdom during the war.	13
Number and tonnage of the freight ships employed for transporting supplies for the Royal Italian Navy during the war.	14
Supply of munitions during the war.	15
Employment of the artillery of the R. Italian Navy during the war.	16
Initial situation and development of the artillery of the Royal Italian Navy during the war.	17
Initial numerical situation and development of the fleet employed by the Royal Italian Navy during the war.	18

CHART SHOWING ACTIVITY OF THE ITALIAN NAVY

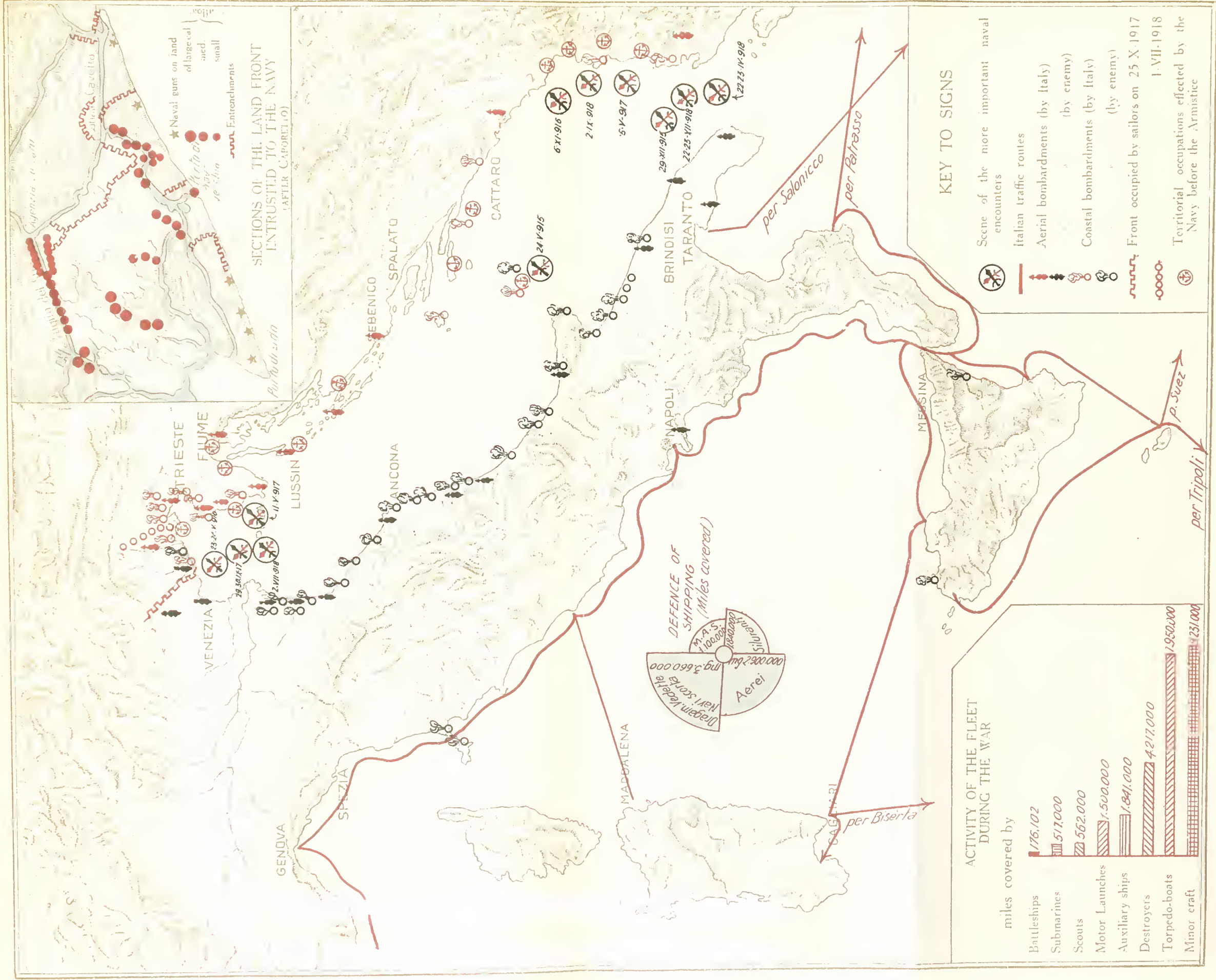


CHART SHOWING

The occupations of territory and islands carried out in the Adriatic before and immediately after the Armistice by or under the protection of the Royal Italian Navy.

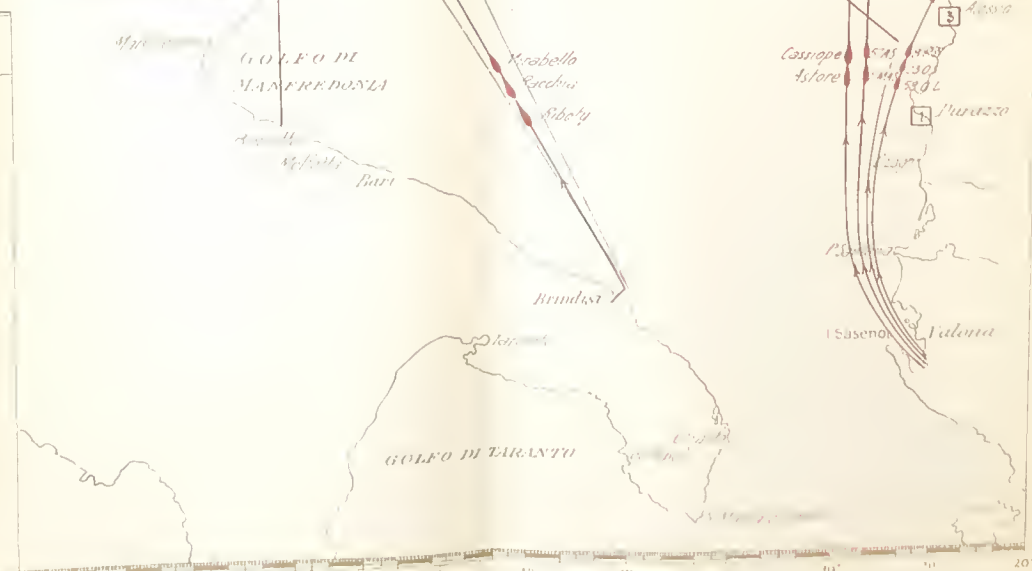
KEY TO NUMBERS.

No.	PLACE	DATE	Time	BY WHOM EFFECTED
1	DURAZZO	14 Oct. 1918		Sections of the R. Army escorted by Ship of the R. Navy (from Valona).
2	S. G. di MEDUA	27 Oct. 1918		Sections of the R. Army. The 28th torpedo boats and subsequently the Grido Battalion (from Valona).
3	ALESSIO	1 Nov. 1918		Section of the R. Navy (from Medua).
4	SCUTARI	2 Nov. 1918		Section of the R. Army, with a few men from the Navy.
5	DULCIGNO	3 Nov. 1918	14.30	Sections of the R. Navy with torpedo boats (57 AS) (from Valona).
6	PILLAGOSA		15.00	37 PN 38 PN 2 motor launches (MAS).
7	TRIESTE		16.10	Audace, La Masa, Misori, Fabrizi, Clemente, Prociono, piloted by torp. AUT. B3 (from Venice) and followed by the troop convoy escorted by torp. 64, 44, 41 PN and 3 to OS.
8	PARENZO		18.10	Abbia, 65, 66 PN (from Venice).
9	ANTIVARI	4 Nov. 1918	8.00	Cassiopea, Astor (from Valona).
10	LISSA		9.00	Mirabella, Racchia (from Brindisi).
11	ABRAZIA		12.00	Acerbi (from Venice) (formed part of the Fiume expedition ("I").
12	MONFALCONE		12.00	13 OS (from Trieste).
13	LUSSIMPICCOLO		13.15	Orsini (from Venice) (formed part of the Fiume expedition ("I").
14	FIUME		14.00	Filibrino, Sciro, Stecca (from Venice) Orsini A. Acerbi ("I") detached.
15	LACOSTA		14.00	Robotti (from Brindisi).
16	CURZOLA		14.00	Ribbia (from Valona).
17	ZARA		14.45	55, 56 OS (from Venice).
18	MELEDA		15.00	Sparviero (from Valona).

KEY TO NUMBERS.

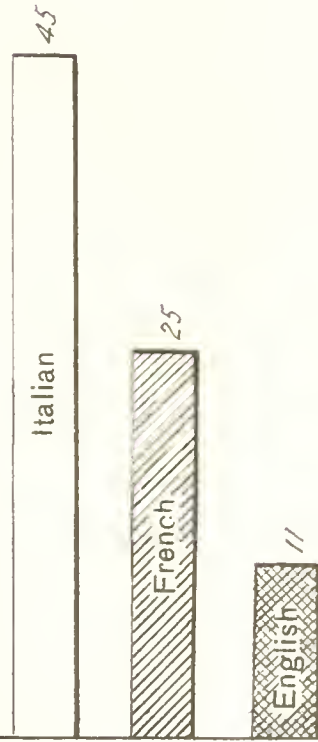
(BY WHOM EFFECTED)

19	Sections of the R. Army escorted by Ship of the R. Navy (from Valona).
20	Sections of the R. Army. The 28th torpedo boats and subsequently the Grido Battalion (from Valona).
21	Section of the R. Navy (from Medua).
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26	Abbia, 65, 66 PN (from Venice).
27	Cassiopea, Astor (from Valona).
28	Mirabella, Racchia (from Brindisi).
29	Acerbi (from Venice) (formed part of the Fiume expedition ("I").
30	13 OS (from Trieste).
31	Orsini (from Venice) (formed part of the Fiume expedition ("I").
32	Filibrino, Sciro, Stecca (from Venice) Orsini A. Acerbi ("I") detached.
33	Robotti (from Brindisi).
34	Ribbia (from Valona).
35	55, 56 OS (from Venice).
36	Sparviero (from Valona).
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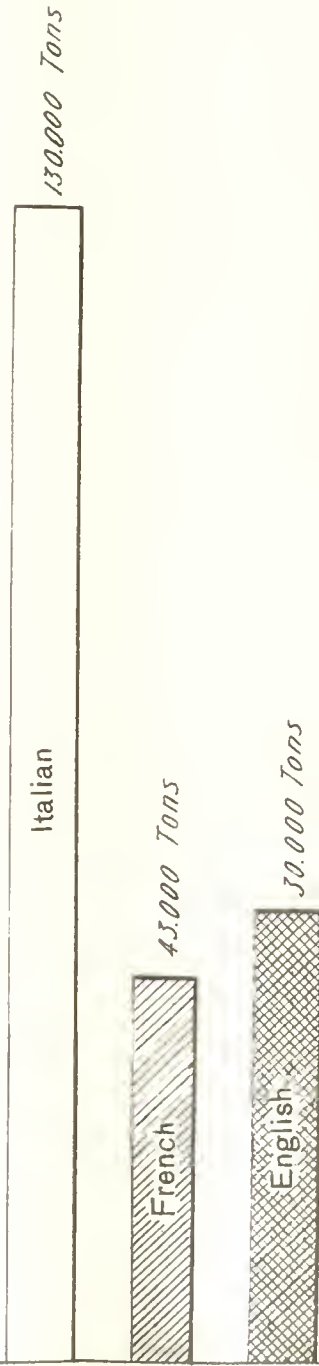


Italian and allied fleet used for the rescue of the Serbian Army (December, 1915 - April, 1916)

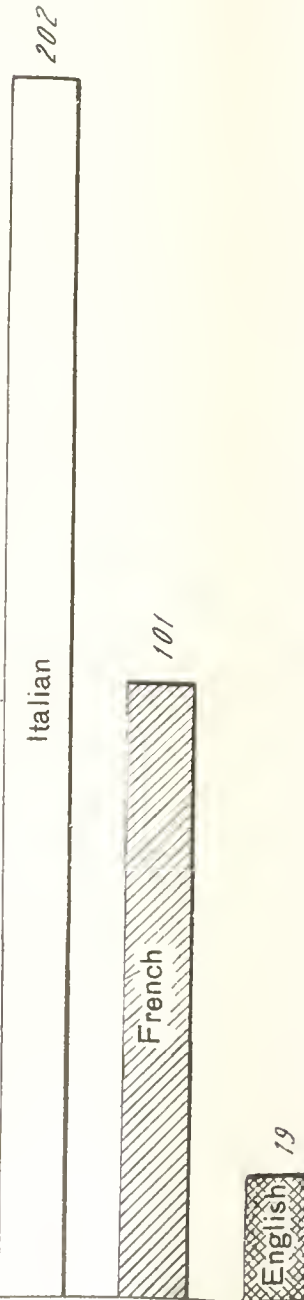
Number of steamers used by the various navies.



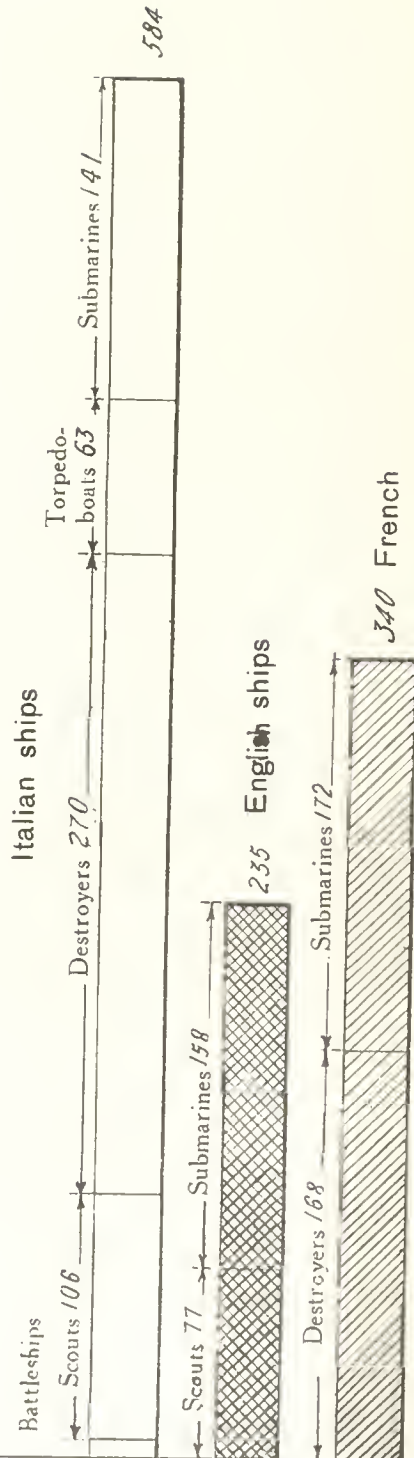
Tonnage of the steamers used by the various navies.



Number of voyages made by the steamers of the various navies.



Number of cruises carried out by Italian
and Allied warships from November, 1915 to April, 1916,
for supplying the Serbian Army and during its evacuation from Albania

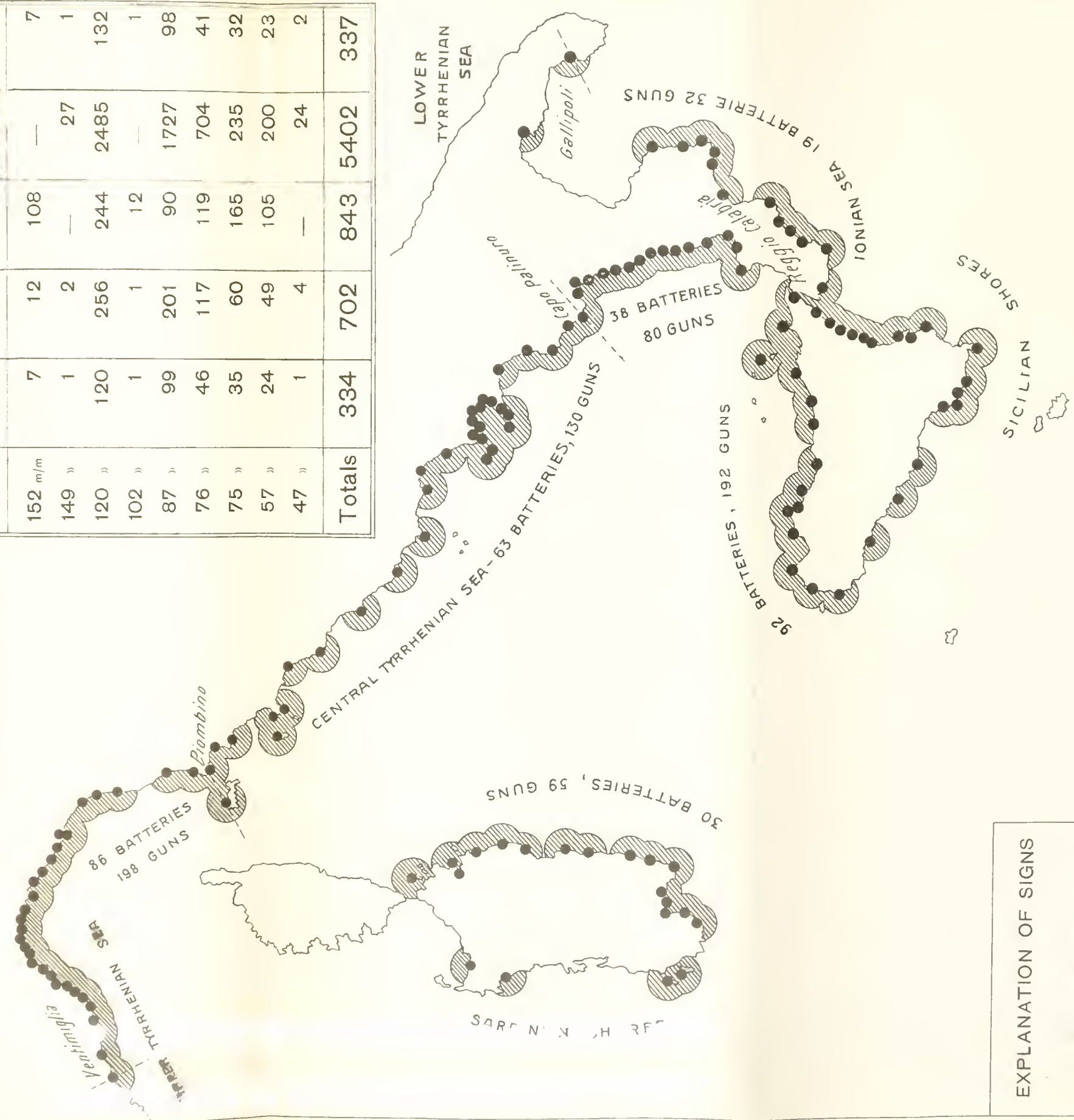


Italian
 French
 English

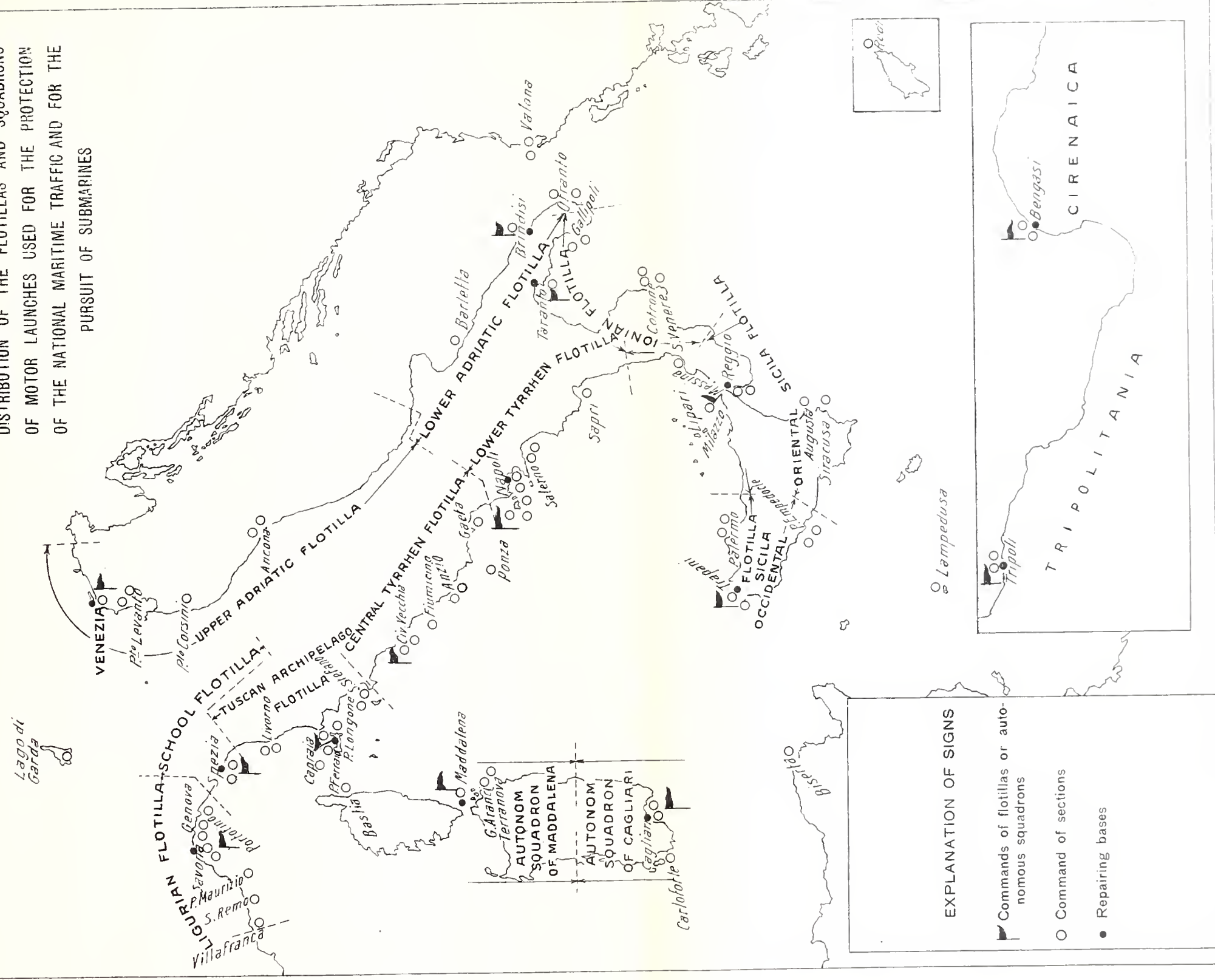
Chart showing the batteries of guns of medium and small calibre placed along the shores of the Tyrrhenian and Ionian seas for the protection of maritime traffic.

Recapitulation of batteries and personnel attached.

Calibre	Number of batteries	Number of guns	Personnel		Officers
			Navy	Army	
152 m/m	7	12	108	—	7
149 »	1	2	—	27	1
120 »	120	256	244	2485	132
102 »	1	1	12	—	1
87 »	99	201	90	1727	98
76 »	46	117	119	704	41
75 »	35	60	165	235	32
57 »	24	49	105	200	23
47 »	1	4	—	24	2
Totals	334	702	843	5402	337

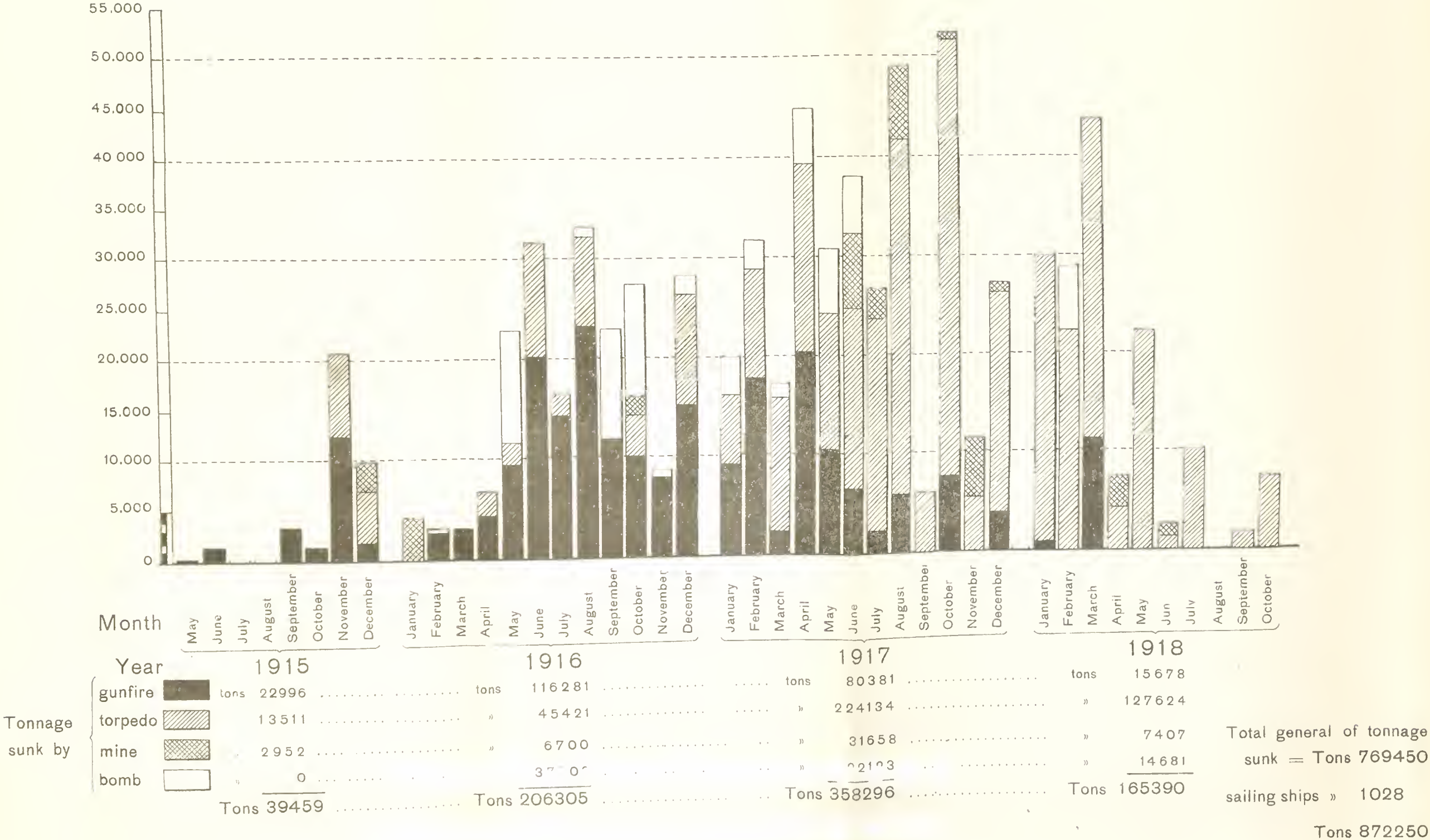


DISTRIBUTION OF THE FLOTILLAS AND SQUADRONS
OF MOTOR LAUNCHES USED FOR THE PROTECTION
OF THE NATIONAL MARITIME TRAFFIC AND FOR THE
PURSUIT OF SUBMARINES



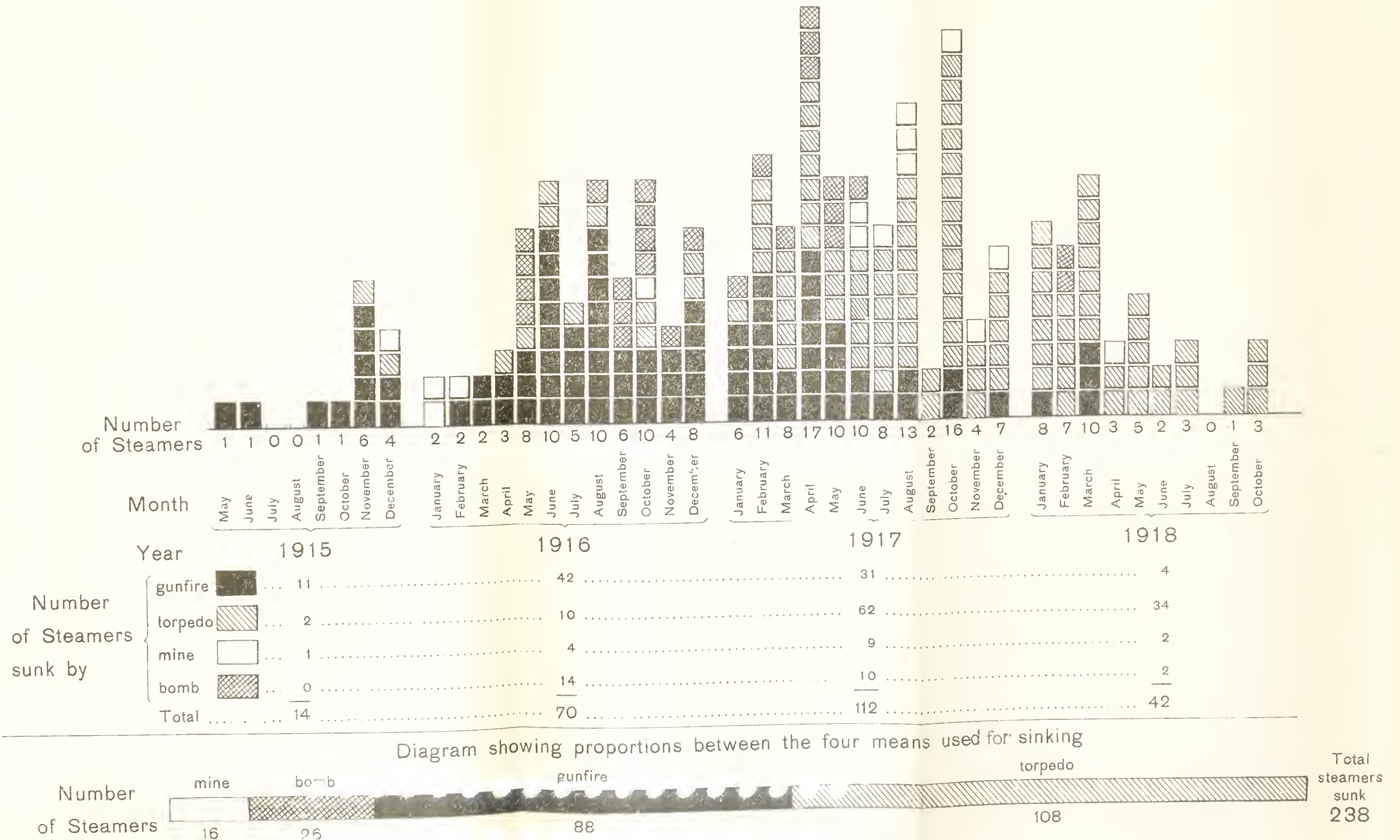
GROSS TONNAGE OF ITALIAN STEAMSHIPS SUNK BY ENEMY ACTION

FROM MAY 24, 1915, TO OCTOBER 31, 1918.





NUMBER OF ITALIAN STEAMERS SUNK IN ALL SEAS BY GUNFIRE, TORPEDO, MINE OR BOMB FROM MAY 24, 1925 TO OCTOBER 31, 1918.



Comparative activity of various types of ships during the war.

(duration of war = 100)

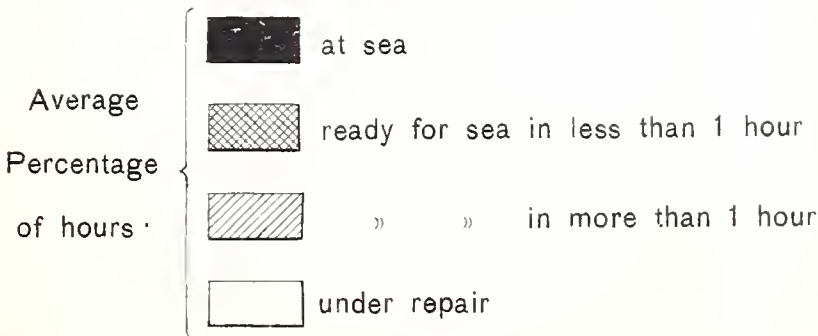
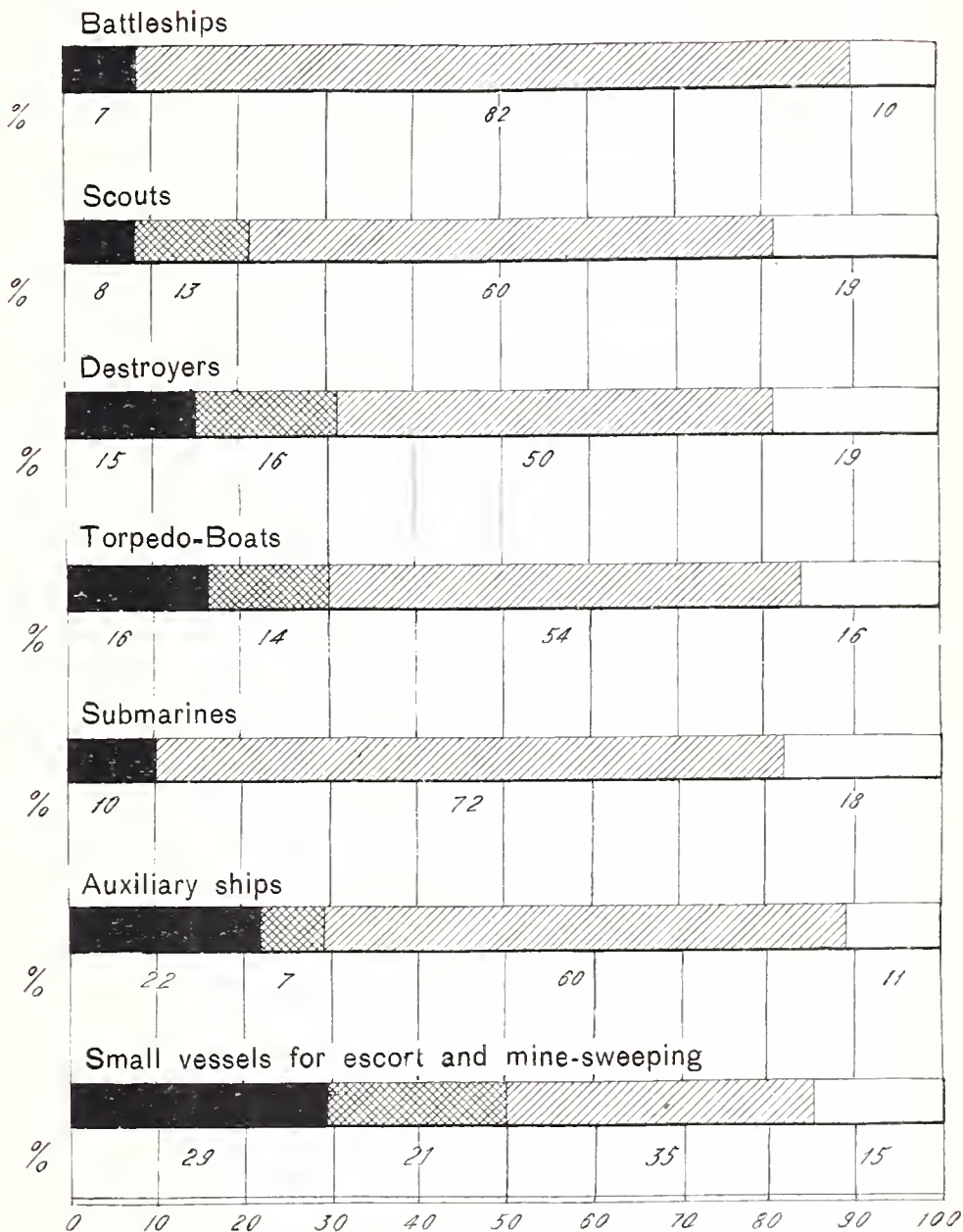


Diagram of the total number of voyages (war or escort) carried out during the war by the various units of the Royal Italian Navy

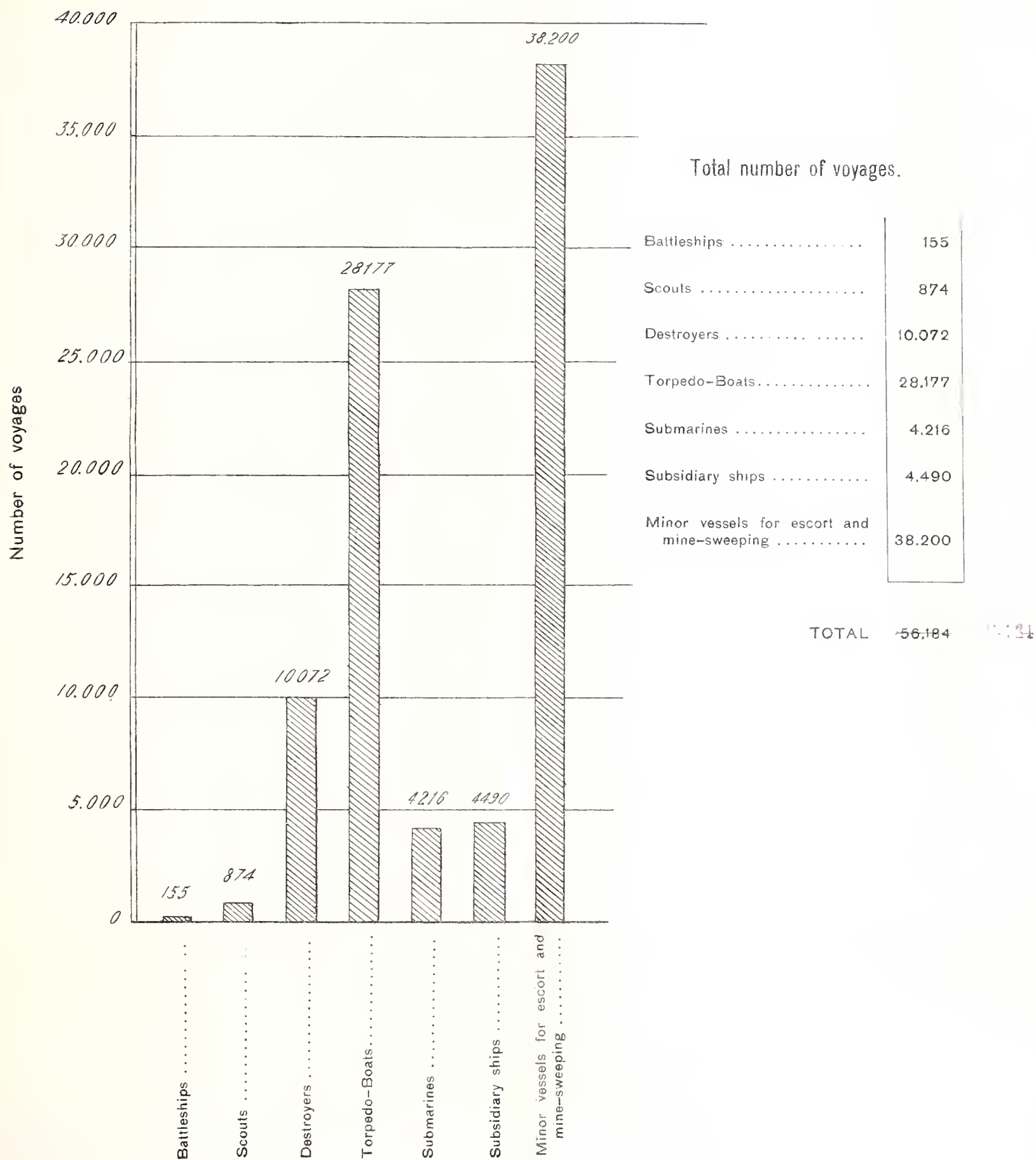
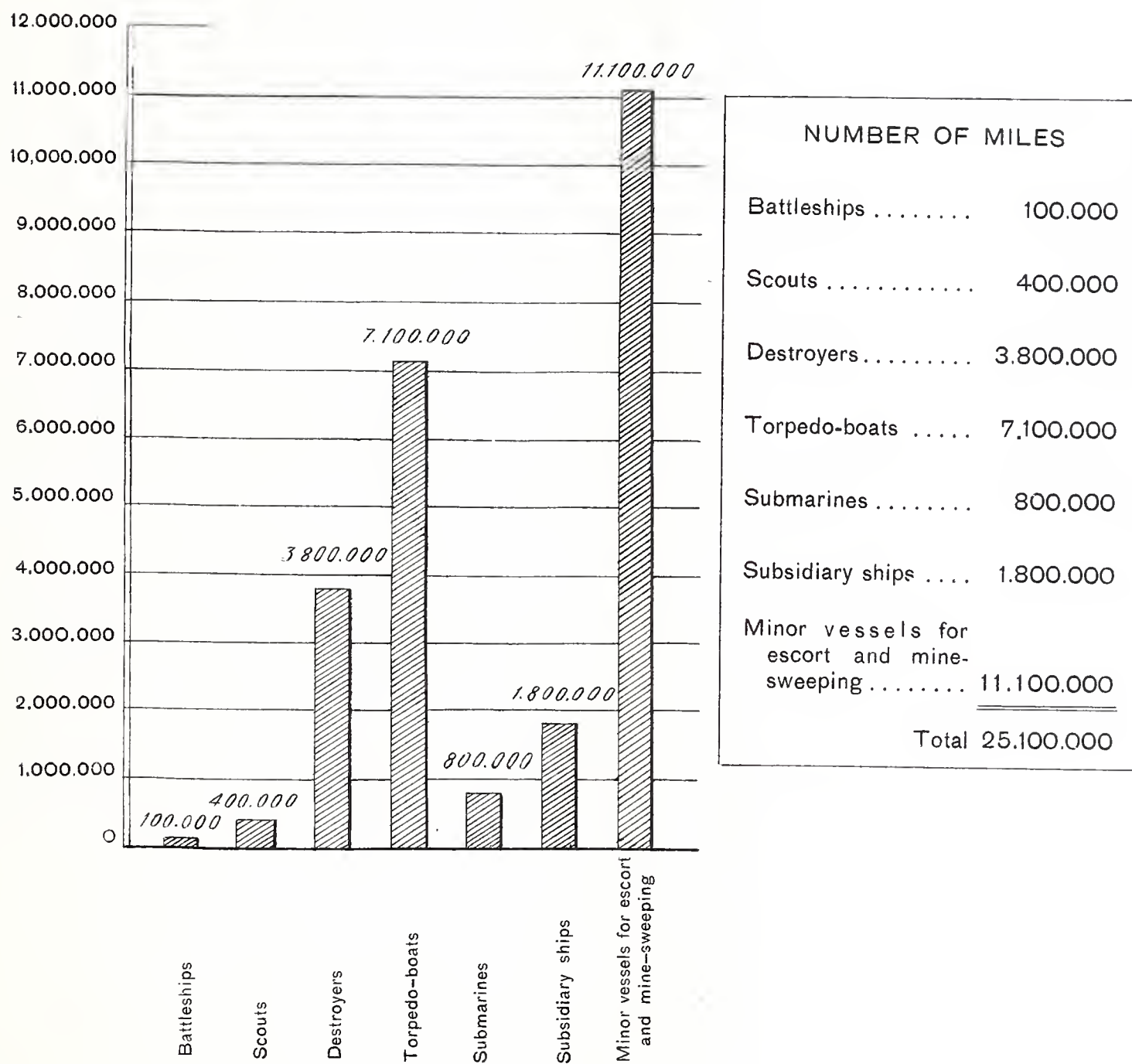
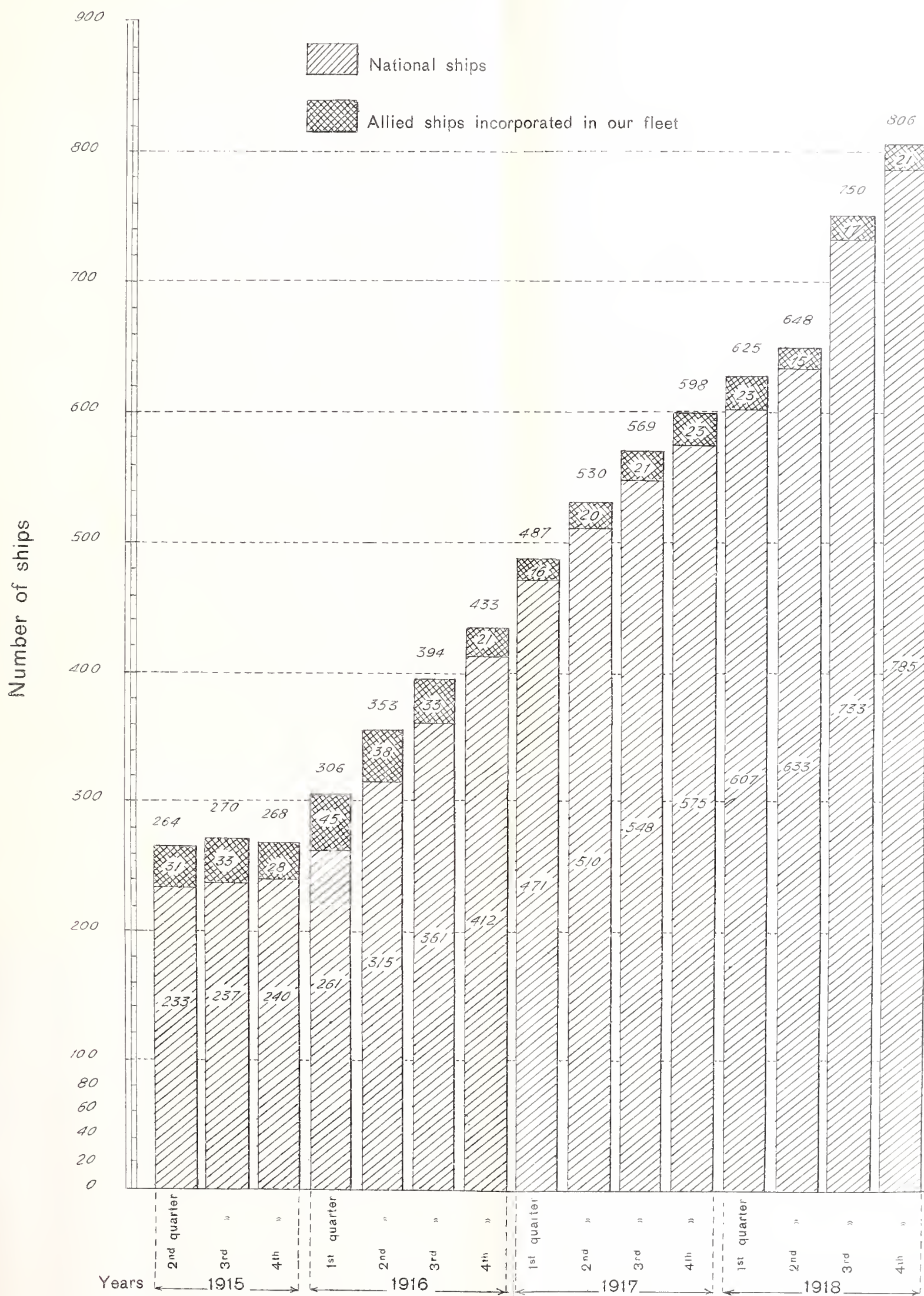


Diagram showing the total number of miles covered by the different units
of the Royal Italian Navy during the war.



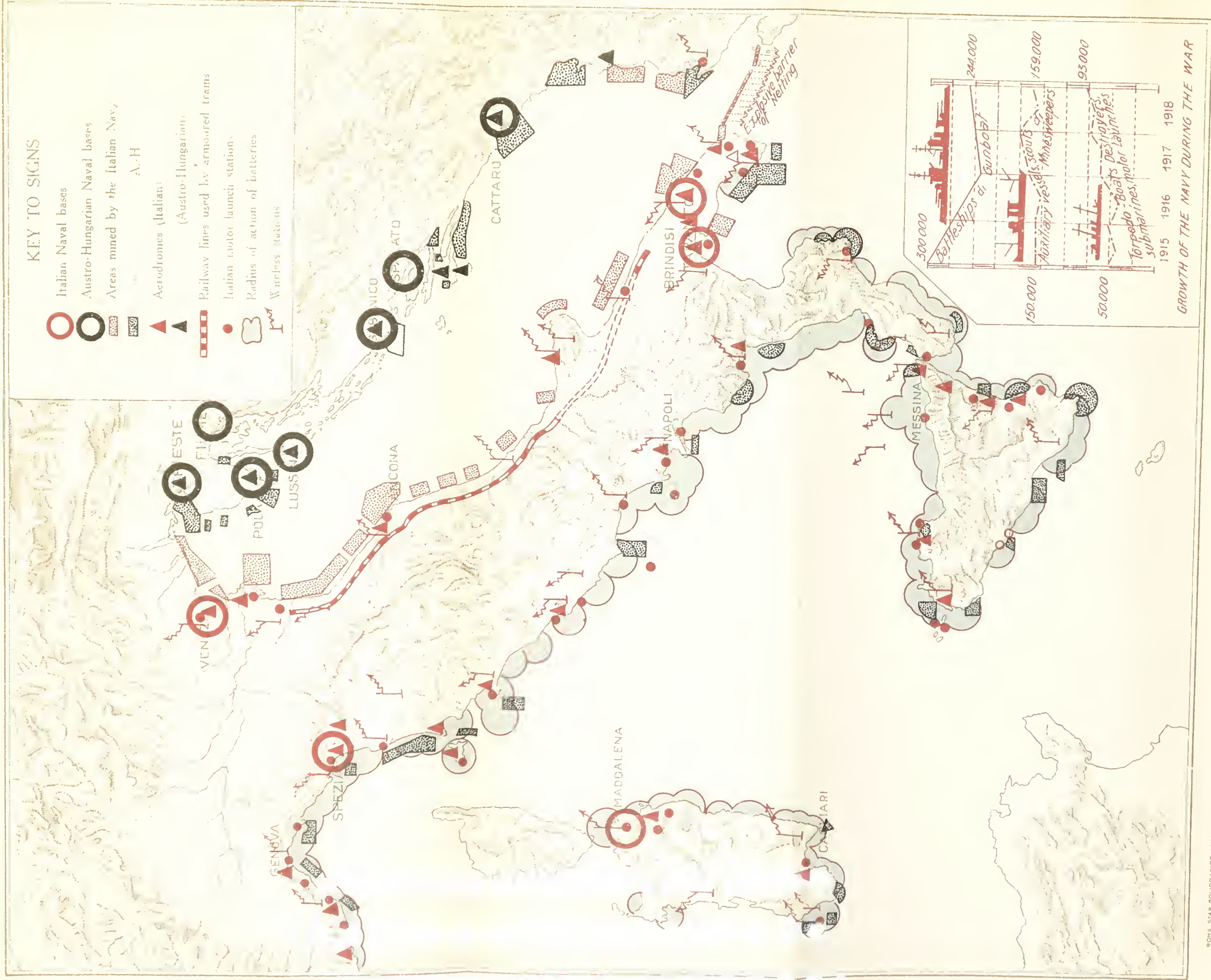
NUMBER OF SHIPS CONSTITUTING THE ACTIVE NAVAL FORCES

(Battleships, Scouts, Destroyers, Torpedo-boats, Submarines, Cruising & Escort Ships, Patrols, Mine-sweepers, Monitors, Armed Pontoons, Gunboats, Motor Launches).

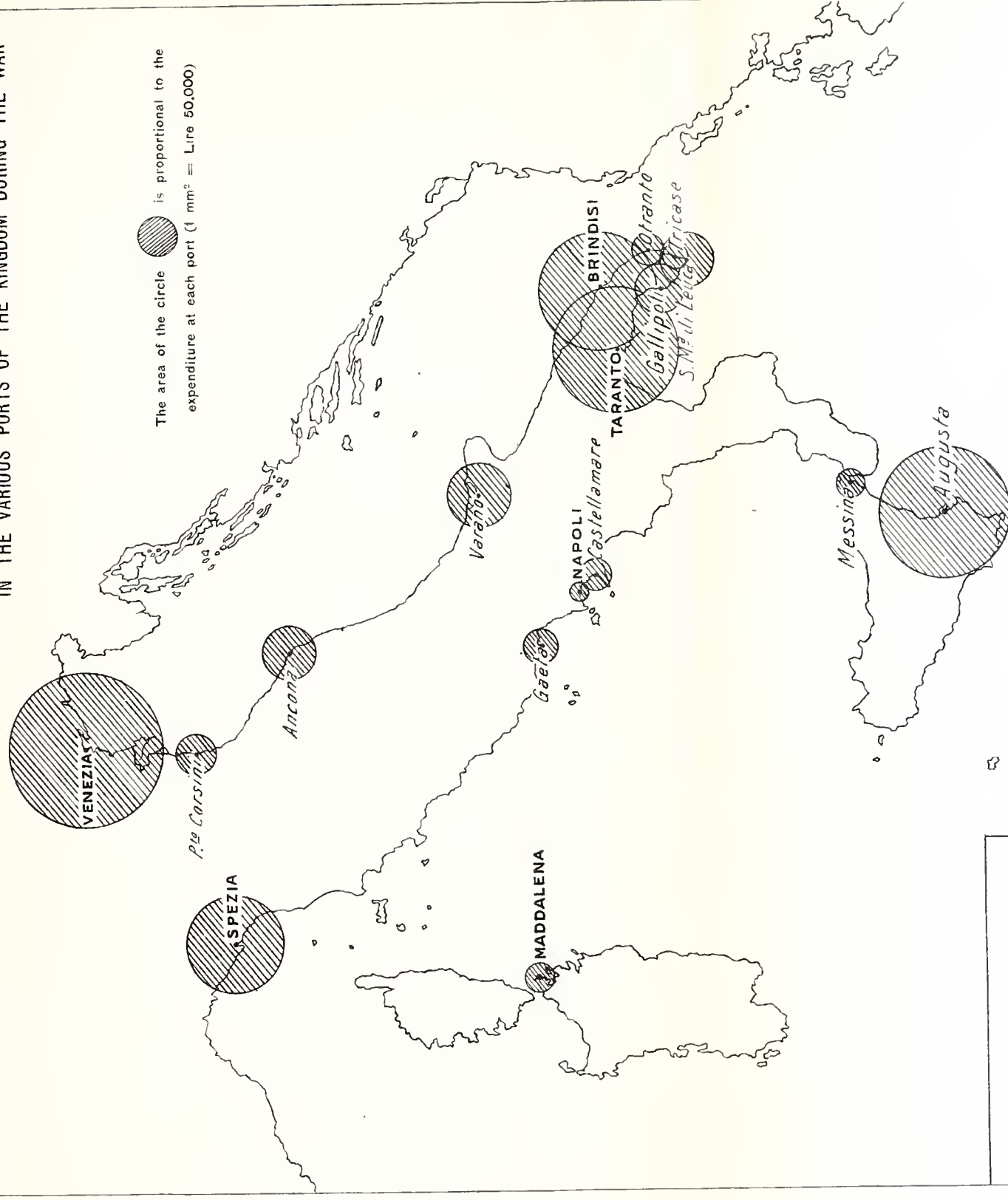




GENERAL SCHEME OF DEFENSIVE AND OTHER MEASURES EMPLOYED.



HARBOUR WORKS CARRIED OUT BY THE ROYAL ITALIAN NAVY IN THE VARIOUS PORTS OF THE KINGDOM DURING THE WAR

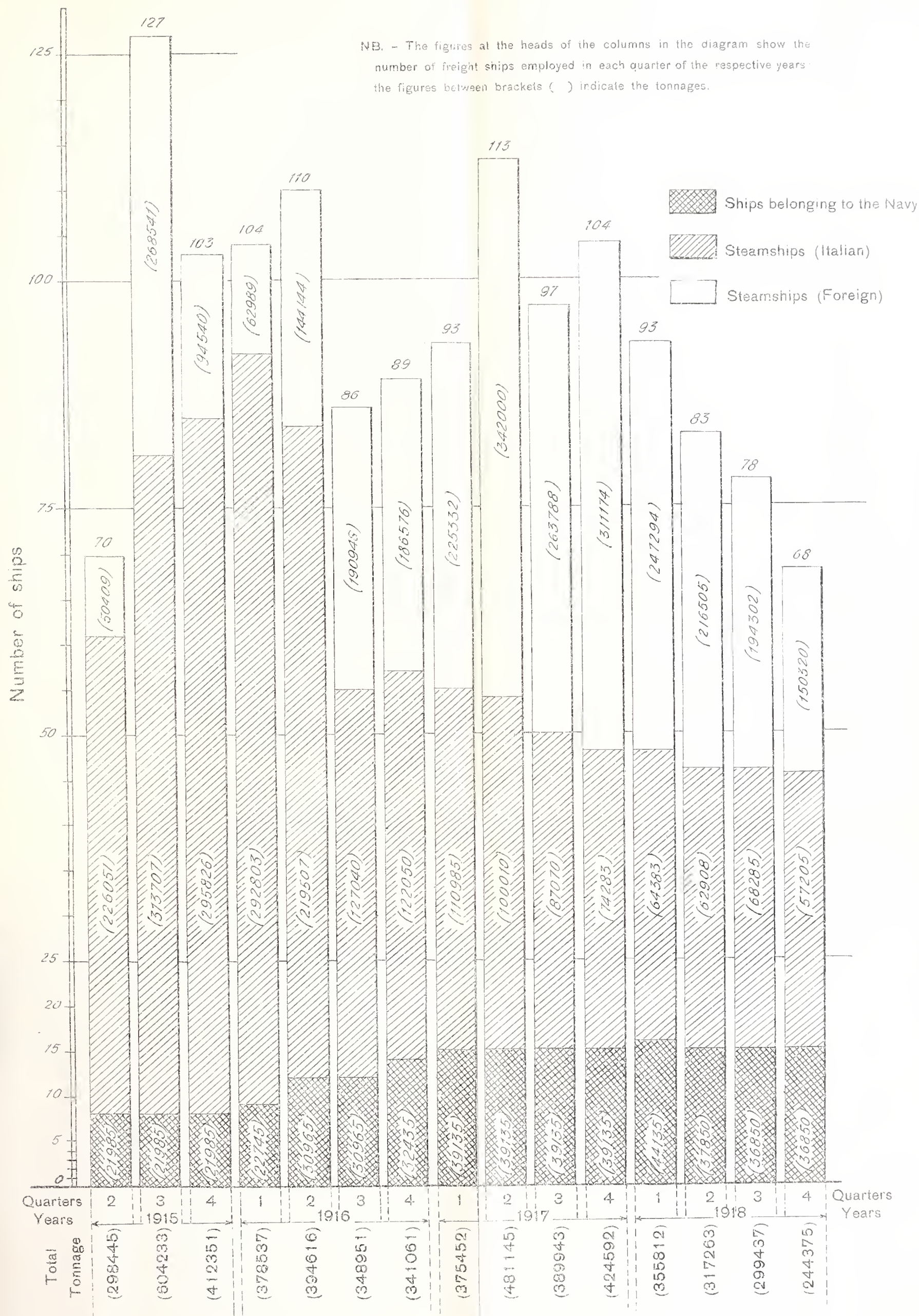


EXPENDITURE IN THE VARIOUS PORTS

Estuario Veneto	Lire 21,569,500
Porto Corsini	1,365,000
di Ancona	2,291,000
di Varano	3,700,000
di Brindisi	12,994,000
di Otranto	1,000,000
di Tricase	625,000
Rada S. Maria di Leuca	2,000,000
Porto di Gallipoli	2,500,000
di Taranto	14,715,000
Rada di Augusta	15,000,000
Porto di Messina	650,000
R. Ars. Castell. di Stabia	1,050,000
Porto Militare di Napoli	325,000
di Gaeta	1,250,000
di Spezia	8,262,000
della Maddalena	730,600

Total L. 90,027,100

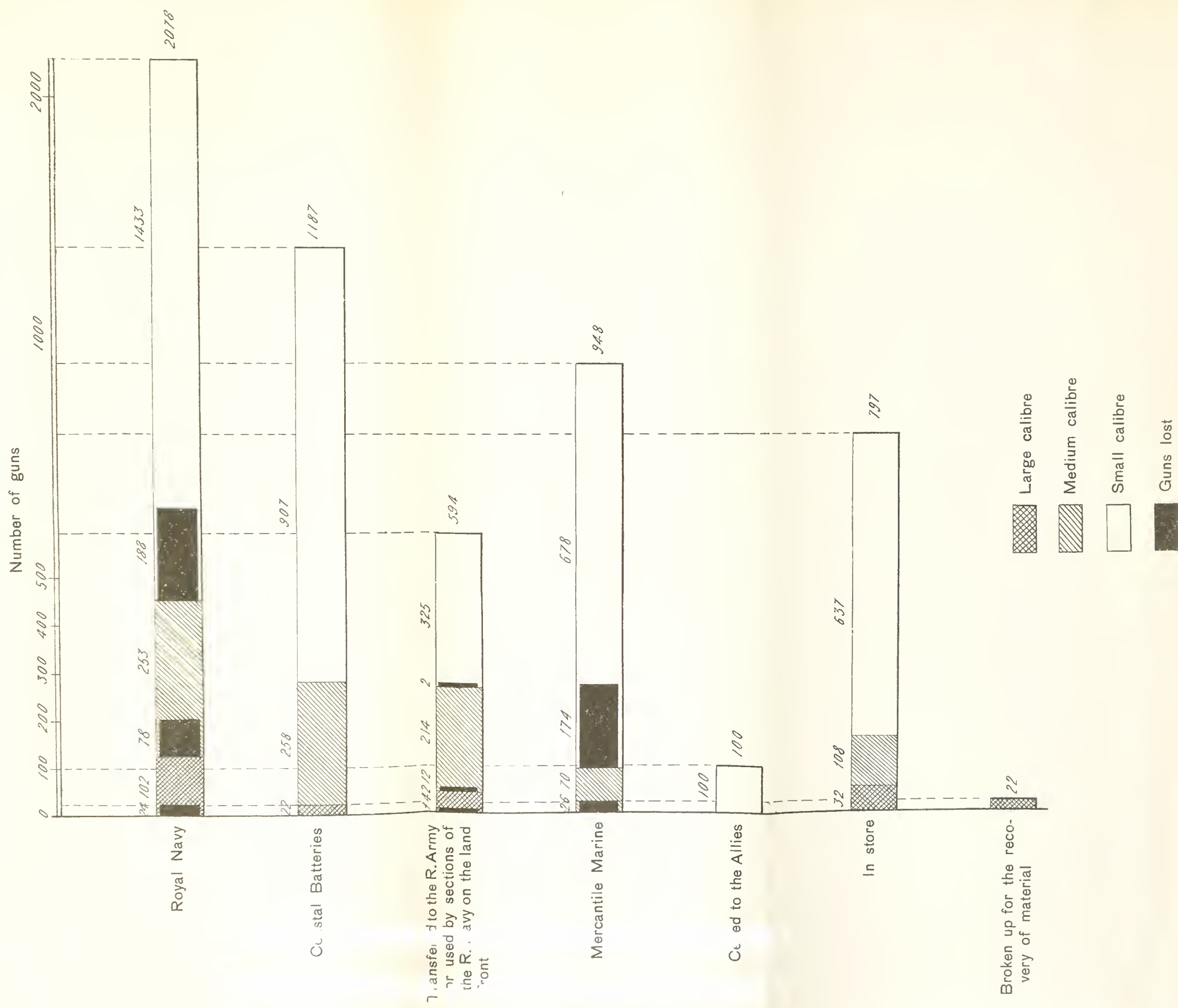
Number and tonnage of the freight ships employed for transporting supplies for the Royal Italian Navy during the war.



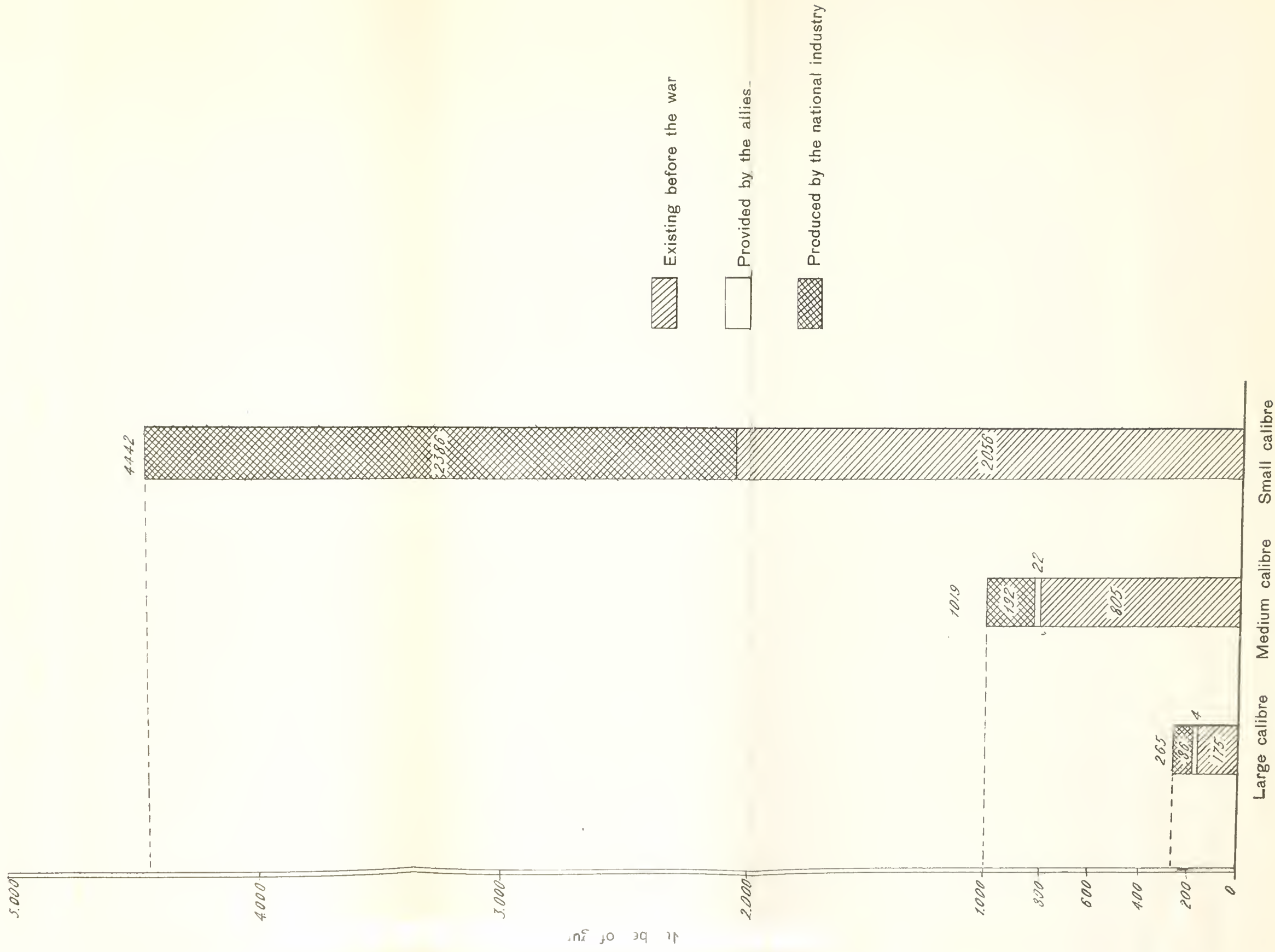
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EMPLOYMENT OF THE ARTILLERY OF THE R. ITALIAN NAVY DURING THE WAR

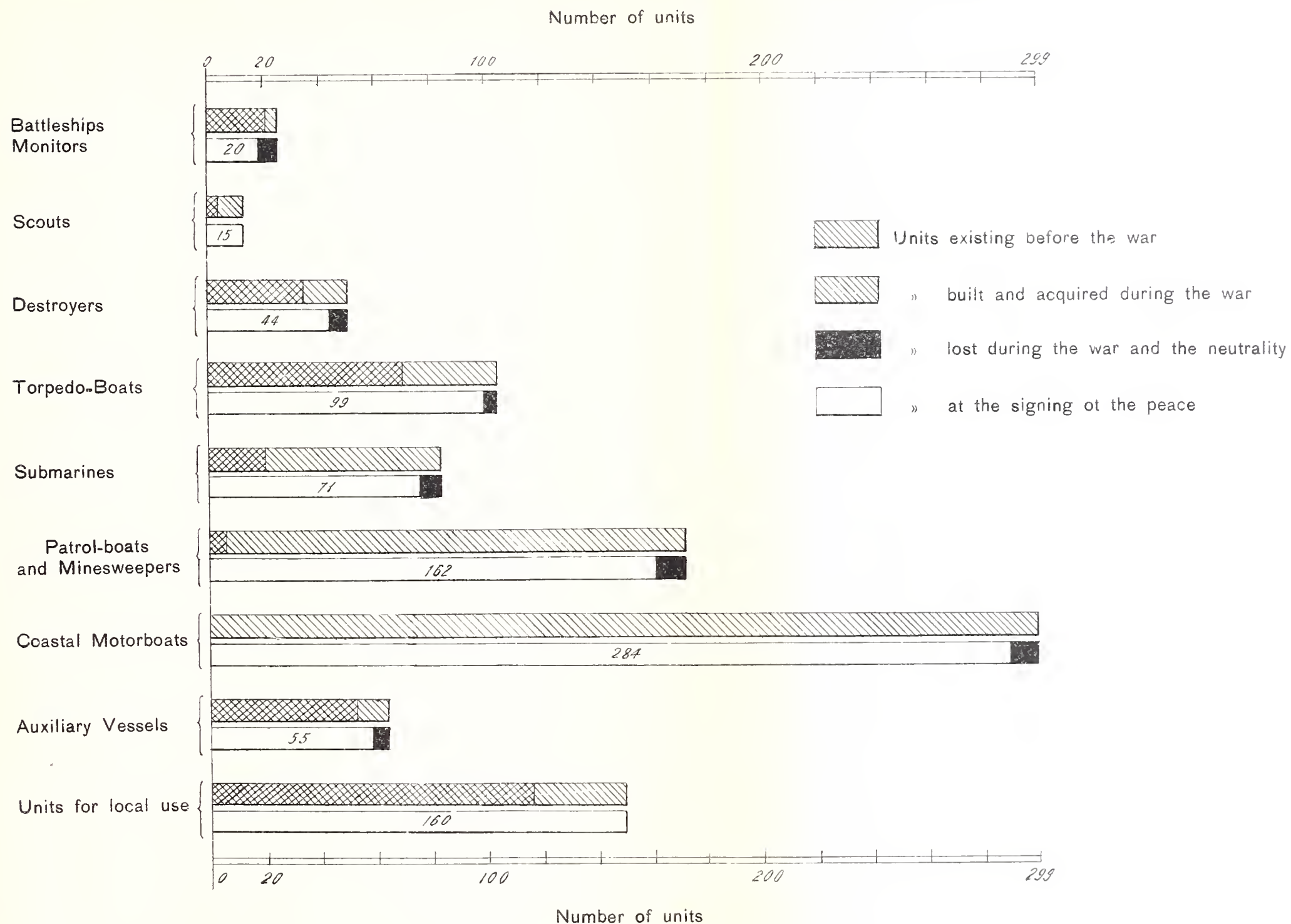


INITIAL SITUATION AND DEVELOPMENT OF THE ARTILLERY OF THE ROYAL ITALIAN NAVY DURING THE WAR





INITIAL NUMERICAL SITUATION AND DEVELOPMENT OF THE FLEET EMPLOYED BY THE ROYAL ITALIAN NAVY DURING THE WAR



4540

